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by Edgar Rice Burroughs

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by R. F. Starzl

THE FLYING FOOL
by David H. Keller, M.D.

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35 YEARS are a long time. And when one dwells in the past history of a magazine—as we have done to prepare for you this 35th anniversary issue of AMAZING STORIES—one becomes aware of the debt that is owed to the past.

Obviously the present staff of AMAZING can take no credit for this issue. We are the inheritors of a legacy. And we'd like to thank those from whom we inherit. Not only the authors and illustrators whose previous creations come alive again in these pages; but all the men and women whose contributions over 35 years have enabled AMAZING to live, to prosper, and to continue its efforts to publish the best science-fiction it can obtain.

More than writers and artists must be thanked. At this time, we at Ziff-Davis remember the editors who labored so devotedly; to them, too, we owe a debt.

And a special word of thanks is due to our founder, Hugo Gernsback, for his continued goodwill and cooperation, and for his guest editorial. To Frank R. Paul, dean of science-fiction artists, for the opportunity once again to enjoy his colorful and imaginative creations. To all the writers, publishers and agents who collaborated in making available the stories we offer you. And, last but far from least, to Sam Moskowitz, whose interest in and enthusiasm for science-fiction is as fresh and vibrant as ever. It is through his great store of knowledge and his tireless hours of work that we are able to bring you these outstanding reprints. In his introductions to the stories, Sam puts each one in literary and historic perspective.

In reading again the old stories by the giants of science-fiction; in being caught up in the "sense of wonder" that permeates them; in soaring with the expansive imaginations revealed in them—we can only hope that in future years AMAZING will continue to publish stories that will become classics of their own time. That all our efforts will go toward this goal is our solemn promise to you. And may you all be with us for *every* anniversary from now on!—NL and CG

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Amazing
Fact and Science Fiction Stories

APRIL, 1961 Vol. 35, No. 4

REG. U. S. PAT. OFF.

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GUEST EDITORIAL

Hugo Gernsback founded AMAZING STORIES in 1926. On this special occasion, "Mr. Science Fiction" takes a backward—and a forward look—at the magazine he created and the field that he fathered.

AS we look back over the vista of modern science fiction, we are struck by the fact that the outstanding stories in the field—the ones that endure—are those that almost invariably have as their wonder ingredient true or prophetic science.

It is these stories that arouse our imagination and make a lasting impression on us which succeeding years do not seem to obliterate.

Let us take only two authors, Jules Verne (1828-1905) and H. G. Wells (1866-1946), as an example. Both authors had a considerable output of true *science* fiction, with the accent on science. In the *Encyclopaedia Britannica*, top billing is given to only these Verne stories: *Voyage to the Center of the Earth* (1864); *From the Earth to the Moon* (1865); *20,000 Leagues Under the Sea* (1869); *The English at the North Pole* (1870); *Around the World in 80 Days* (1872). All of these highly imaginative tales concern themselves with science, and, as the *Britannica* says: "The novels of Jules Verne are dreams come true, dreams of submarines, airplanes, television; they look forward, not backward. Therefore they are still the books of youth."

Wells' best and most enduring stories, too, were comparatively few of a large list. To quote the *Britannica* once more: "He was to clothe scientific speculation in

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the form of fiction." Here are some of Wells' outstanding science fiction efforts, both novels and short stories: *The Time Machine* (1895); *The Stolen Bacillus* (1896); *The Invisible Man* (1897); *The War of the Worlds* (1898); *The Sleeper Awakes* (1899); *Tales of Space and Time* (1899); *The First Men in the Moon* (1901).

Both Verne and Wells wrote a large variety of other stories, yet in my opinion and that of many authorities it is the science fiction content that makes them enduring and historic—deservedly so.

Both of these illustrious authors had succumbed to the phenomenon of science fiction fatigue—the creative science distillate of the mind had been exhausted. New prophetic visions could no longer be generated.

Science fiction exhaustion is well known to every author of the genre; some succumb to it early, others late in their careers. It is a phenomenon only too well understood by all editors and publishers, who must cope with it. Nor is it any wonder that the science fiction output of nearly all authors who have ever tried it is so limited. Only those who have attempted it can know how difficult and exhausting the subject can become.

Verne and Wells continued writing until advanced ages, after they had written themselves out in science fiction themes. They then went into many other avenues of literature. To mention only one: Wells' famous *The Outline of History* (1920).

The true science fiction author must have a high order of inventiveness; he must have constant inspiration, intuitive and prophetic insight of the future; and, above all, he must know his science. No wonder that there are only a handful of first-rate science fiction authors.

When I brought out AMAZING STORIES monthly in 1926, I had accumulated considerable experience in science fiction. I had been publishing what I called "Scientifiction" in my various earlier magazines off and on, but not in a periodical entirely devoted to it.

In 1911 for my pioneer magazine MODERN ELECTRICS, I wrote a serial, *Ralph 124C 41+*. Then came *The Scientific Adventures of Mr. Fosdick*, by Jacque Morgan, who lasted for five stories. Later, in the ELECTRICAL EXPERIMENTER magazine, I wrote *Baron Münchhausen's New Scientific Adventures*, which went through 13 installments. Very good authors in the same magazine were George Frederic Stratton, Charles M. Adams, Charles S. Wolfe, all of whom wrote occasional stories.

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Next to arrive was the celebrated Clement Fezandié, a most talented French-American who invented the famous humorous science fiction stories under the all-encompassing title of *Dr. Hackensaw's Secrets*, each with a fresh scientific concept. The first one, in the ELECTRICAL EXPERIMETER for July, 1920, was entitled *My Message to Mars*. This titan of science fiction ended his output with story #43—a four-part serial which he called *A Journey to the Center of the Earth*, in my former magazine, SCIENCE AND INVENTION, September, 1925, issue. Fezandié avowedly was an idea genius. In the color-powder-pigment business, he wrote for fun *only* and religiously sent back all checks in payment of his stories! He also wrote two more stories for AMAZING STORIES in 1926. I doubt if any science fiction author today can match his voluminous output for pure science fiction stories and unusual ideas.

There was also a nine-part serial, *Tarrano the Conqueror*, by Ray Cummings, in the same magazine, as was *The Metal Emperor* by A. Merritt, which ran from 1927 to 1928 through eleven installments.

Finally, we printed the *Ark of the Covenant*, by Victor MacClure, a serial published in 15 parts in PRACTICAL ELECTRICS from Nov. 1924, to Jan. 1926.

From the short history above it will be seen that the concept of AMAZING STORIES in 1926 was not a haphazard undertaking. Its groundwork had been well prepared for 15 years! Few modern magazines that have endured were rehearsed so well and so long!

What is the future of science fiction in this country? For one who has been closely allied with it for 50 years, I would venture the opinion that, like the stock market, it has its ups and downs, its peaks and its valleys—yet, it, too, for the long pull, advances steadily over the years.

Because of the present unusual interest in science by our young generation, it would seem certain that there will be far more science fiction authors in the future than there ever were in the past. Hence there should be more and better stories, too.

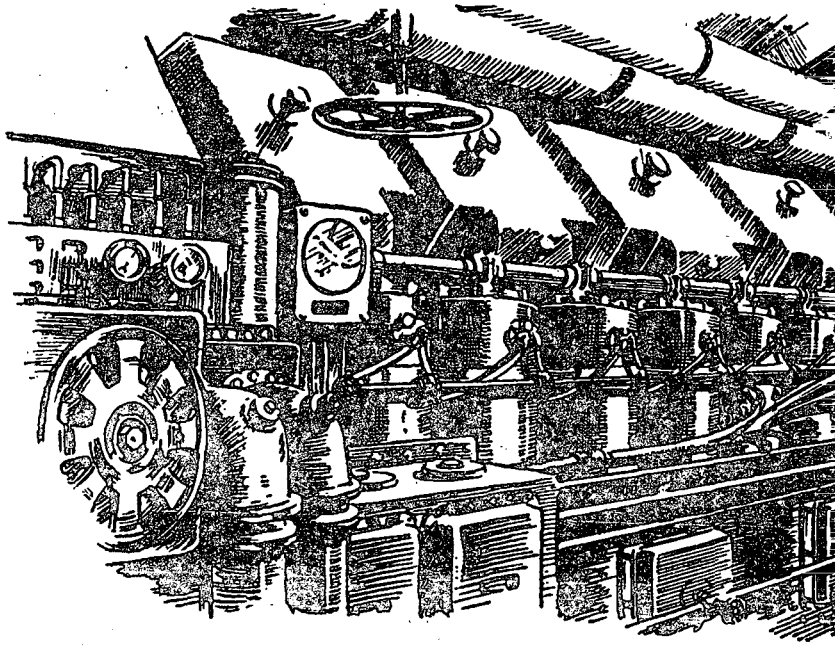
I was much encouraged last October when, invited to speak on science fiction at the Massachusetts Institute of Technology, I noted the profound interest of the students in the subject. My talk lasted only 30 minutes, but the question and answer period took nearly 2 hours!

But what impressed me most was that a university of the calibre of M I T took science fiction so seriously. If now all other

(Continued on page 88)

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I, ROCKET



"I, Rocket" *was on several counts a milestone in the writing career of Ray Douglas Bradbury. It was his first sale* to Amazing Stories, *and the longest science fiction story he had written up to that time—May, 1944. It was also the first time an editor had considered one of his stories important enough to feature the title on the cover. Ray Bradbury had sold a few science fiction stories elsewhere, but they had made little impact. His reputation was predominantly confined to* Weird Tales, *which eventually published 25 of his fantasies of psychological horror, frequently echoing events of the author's childhood.*

Two years before the publication of "I, Rocket," Ray Bradbury was still selling newspapers on the corner of Olympic and Norton, in Los Angeles. Despite the undeniable promise displayed by his published work he

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By RAY BRADBURY

Illustrated by BRADY



Gushing oil followed the flying length of pipe as Belloc reeled back.

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had received virtually no important critical acceptance either in or out of the science fiction world. The appearance of "I, Rocket," however, resulted in the following notice in Fantasy Times (*today better known as* Science Fiction Times) *then published by Sam Moskowitz:*

"Another new author who has continued to rise lately is Ray Bradbury. Remembering the years he plugged without even encouragement; knowing that he is the possessor of one of the world's largest collections of rejection slips; and knowing, too, just how poor some of his early stuff was, one can't help but feel just a tiny bit glad that he's made the grade at last. One hates to feel that patience, perseverance and hard work have no recompense in the long run . . . His shorts now appear in virtually every issue of Weird Tales. *He had cover recognition on recent* Amazing *and* Planet Stories, *and while his work has not been sensationally received, many readers have found the style of writing he has developed easy to read and clever."*

"I, Rocket" was an early example of the off-beat type of story that was to build Bradbury's then evolving reputation as a science fiction writer. In it we find a space adventure told from the viewpoint of the rocket ship. This is the first time this story has been reprinted since its original publication almost 17 years ago.

AT the rate things are coming and going it'll take a few hundred years to break me down into rust and corrosion. Maybe longer. In the meantime I'll have many days and nights to think it all over. You can't stop atoms from revolving and humming their life-orbits inside metal. That's how metal lives its own special life. That's how metal thinks.

Where I lie is a barren, pebbled plateau, touched here and there with pale weedy growths, a few hunched trees coming up out of planetoid rock. There's a wind comes over the plateau every morning. There's rain comes in the twilight, and silence comes down even closer in the night. That's my whole life now, lying here with my jets twisted and my fore-plates bashed.

Somehow I feel I haven't fulfilled my destiny *in toto*. A rocket ship isn't built to lie on a hard gray plateau in the wind and rain—alone. After those trips through space it's almost too much to believe, that the rest of my days will be wasted here—

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But while I'm rusting and wondering, I can think it all over. How I came to be here, how I came to be built. . . .

I've taken them all in their time, the crew; seen them wounded, crushed by centrifuge, or shattered by spacebombs; and once or twice I've had my rear-jets pounded off in a double-fisted foray: there's hardly a plate in my hull hasn't been welded again and again, not a chronometer in my control console hasn't been blasted and replaced.

But the hardest thing of all was replacing the men inside me. The little guys who ran around with greasy faces, yelling and fighting for air, and getting their guts frozen to their peritoneum every time I swung into an unexpected arc during the days when free gravity was experimental.

The little guys were hard to find, harder to replace after a particularly violent thrust between worlds. I loved the little guys, the little guys loved me. They kept me shining like a nickel moon, nursed me, petted me, beat me when I deserved it.

From the very first I wanted to be of some help in the wild excursions from Earth to Deimos-Phobos coordinate Bases, the war moon held by Earth to strike against the Martians.

My birth-period, and the Base where I was integrated, skeleton, skin and innards, went through the usual birth-pains. It is a dim portion in my *memory,* but when the final hull was melted to me, the last rungway and console fitted to my hulk, the awareness was there. A metal awareness. The free electrical atom flow of metal come aware.

I could think and could tell nobody that I thought.

I was a war rocket. Fore and aft they placed their space-artillery nozzles, and weighted me with scarlet ammunition. I began to feel my purpose, expectantly, perhaps a bit impatiently.

I wasn't really alive yet. I was like a child half out of the womb, but not yet breathing or making any sound or making any movement. I was waiting for the slap on the back to give me strength and directed purpose.

"Hurry it up, hurry it up! Skip!" directed the munitions-lieutenant, standing by my opened air-locks that day so many years ago. Sunlight baked my metal as men hustled in and out with small rubber-tired trucks bearing the tetron space explosives. "We've got a war to meet!" cried the lieutenant.

The men hurried.

There was some fancy bit of business about a christening going on simultaneously with this scurrying about in my cargo

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cubicles. Some mayor from some city crashed a bottle of foaming liquor on my prow. A few reporters flicked their cameras and a small crowd put up their hands, waved them a fraction and put them down again, as if they realized how stupid it really was, wasting that fine champagne.

IT was then and there I saw the captain, Metal bless him, for the first time. He came running across the field. The Master of my Fate, the Captain of my Soul. I liked him right off. He was short and whipped out of wrinkled hard brown leather, with green, implacable diamond eyes set in that hard leather, and a slit of white uneven teeth to show to anybody who disobeyed. He stomped into the airlock and set his clipping boots down and I knew I had my master. Small tight knuckle bones and wrists told that, and the way he made fists and the quick, smooth manner in which he cracked out the orders of the day:

"Snap it!" he said. "Get rid of that damned mayor out there! Clear apron! seal the locks, clamp ports and we'll push the hell out of here!"

Yes, I liked him. His name was Lamb; ironic for a man lacking lamb-like qualities. Captain Lamb, who threw his voice around inside me and made me like the steel edge to it. It was a voice like silk-covered brass knucks. It flowed like water, but burned like acid.

They rapped me tight. They expelled the mayor and his splintered champagne bottle, which by now seemed childish. Sirens shouted across the base apron. The crew did things to my alimentary canal. Twenty-seven of them.

Captain Lamb shouted.

That was the slap on the back that brought me my first breath, my first sound, my first movement. Lamb pounded me into living.

I threw out wings of fire and powder and air. The captain was yelling, snuggled in his crash-hammock, zippered up to his sharp chin; men were swaying, sweating in all their suspensory control hammocks. Quite suddenly I wasn't just metal lying in the sun anymore. I was the damnedest biggest bird that ever sang into the sky. Maybe my voice wasn't anything but thunder, but it was still singing to me. I sang loud and I sang long.

This was the first time I had been outside the hangar and the base to see the world.

I was surprised to find that it was round.

As adolescence is to man, his days from thirteen to eighteen when overnight his viewpoints are radically reformed, so it was

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with my first plunge into space. Life was thrown at me in one solid piece. All of the life I would ever know was given to me without apprenticeship, suckling or consideration. I had growing pains. There were stresses, forces attacking me from all sides simultaneously, feelings, impressions I had never considered possible. The solid understandable gravity of Earth was suddenly taken away and the competition of space gravities each tried their luck with me.

The moon, and after the moon a thousand dark meteors crashing by, silent. Tides of space itself, indescribable, and the urge of stars and planets. And then a thing called momentum when my jets were cut and I moved without breathing or trying to move.

Captain Lamb sat in the control room, cracking his knuckles. "She's a good ship. A fine ship. We'll pound the holy marrow out of those Martians."

The young man by the name of Conrad sat beside the captain at the duo-control. "We'd better," he said anxiously. "There's a girl waiting in York Port for us to come back."

The captain scowled. "Both of you?" You *and* Hillary?"

Conrad laughed. "The two of us. Both on the same war-rocket, going to the fray. At least I can keep my eye on that drunkard this way. I'll know he's not down in York Port scudding along on *my* acceleration . . ."

Captain Lamb usually said all his words quick, fast, like lines of mercury. "Space is a funny place to talk about love. Funny place to talk about anything. It's like laughing out loud in a big cathedral, or trying to make a waltz out of a hymn."

"Lo, the sentimentalist," remarked Conrad.

Lamb jerked. He scowled at himself. "Lo, the damned fool," he said, and got up to measure the control room with his little strides.

They were part of me. Lamb, Conrad and the crew. Like blood pulsing in the arteries of a warm body, like leucocytes and bacteria and the fluid that sustains them—air—locomoting through my chambers into my heart, my driving engines, feeding my livened appetites, never knowing that they were only units of energy like corpuscles giving a greater mass—myself—nourishment, life, and drive.

Like anybody—there were microbes. Destroying elements. Disease, as well as the sentinel leucocytes.

We had one job to do. I knew of this. To fend off the ever increasing attacks against earth's Phobos-Deimos citadels. I felt tension spreading, growing as each day went by. There was too much cigarette smoking, lip bit-

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ing, swearing among the crew-members. Big things lay ahead.

The microbes within my body were in a small dosage; but virulent because they moved free, unchecked, unsuspected. Their names were Anton Larion and Leigh Belloc. I refer to them as bacteria simply because, like microscopic forms in a large body, their function was to poison and destroy me. And the best way to render me inactive would be the destruction of part of my red-blood. That meant Captain Lamb. Or part of his technical war-staff. Larion and Belloc planned for their poisoning, quietly, carefully.

Self-preservation is an eternal, all-encompassing thing. You find it in metal as you find it in amoebas; you find it in metal as you find it in men. My body would be attacked. From outside I feared nothing. From inside I was uncertain. Coming from an unexpected quarter that attack might kill me so very soon after my birth. I didn't approve of the idea.

I went through space toward Mars. I couldn't speak.

I could only feel voice-vibrations throughout my length. The voices of Hillary and Conrad arguing about their woman named Alice in York Port, and the captain snapping at the heels of his crew when he hit the asteroid-skirt, and then the subtle undercurrent of poison stirring in the midst of this—Larion and Belloc—their voices touched my hull:

"You're familiar with the plan, Belloc; I don't want you turning silly at the crisis."

"I know what to do. Don't worry. What the hell."

"All right, I'm just explaining. Now—as far as killing Captain Lamb, that's out. We're only two against twenty-four others. I want to be alive to collect that money we're guaranteed for this—work."

"Logically, then—the engines . . ."

"I'm in favor of it, if you are. This is a war-rocket; spare parts, excess cargo, all that's eliminated for speed. Timebombs should work miracles with the main jet-engines. And when it happens we can be out and away in space in plenty of time?"

"When?"

"During the next shift of crew relief. There's a certain amount of inescapable confusion then. Half the crew's too tired to worry, the other half is just turning out, groggy."

"Sounds okay. Huh. It seems a damn shame though, in a way."

"What?"

"Nice new rocket, never tested before. Revolutionary design. I never enjoyed working on engines before, until I got my station with this jalopy. She's

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sweet. Those engines—sweet as the guts of a flower. And it all goes to hell before it has a chance to prove itself."

"You'll get paid for it. What else do you want?"

"Yeah, I'll get paid, won't I? Yeah."

"Shut up, then. Come on."

The routine circulation of crew-blood through the arteries of the ship took Larion and Belloc below to their stations in the fuel and engines cubicles. The poison was in my heart, waiting.

What went on inside my metal is not to be described. There are no similes, comparatives for the hard, imprisoned, frustrated vibrations that surge through tongueless *durasteel*. The rest of the blood in me was still good, still untouched and untainted and tireless.

"Captain." A salute.

"Belloc." Lamb returned the salute. "Larion."

"Captain."

"Going below?"

"Yes, sir."

"I'll be down in—" Lamb eyed his wrist watch. "Make it thirty minutes. We'll check the auxiliaries together, Belloc."

"Right, sir."

"Go on down, then."

Belloc and Larion descended.

LAMB walked quickly into the computation cube and struck up a rapid word exchange with young Ayres. Ayres, who looked like he was barely out of blushing and floppy hair and semantics school, and still not shaving as often as the others. His pink face glowed when the captain was around. They got on like grandfather and grandson.

They probed charts together. When they finished, Lamb walked off the yardage in the computation room, scowling, examining his boots. Ayres computated.

Lamb paused, looked out the visual-port concernedly. After a moment he said, "When I was a very little kid I stood on the edge of the Grand Canyon, and I thought I'd seen everything there was to see—" A pause. "And now I've got my first captaincy, and—" he patted the hull of my body quietly "—a fine first rate lady of a ship." Quick, to Ayres: "What are you, Ayres?"

Startled, Ayres blinked. "Me, sir?"

The captain stood with his strong, small back to Ayres, inspecting the stars as if they were a celestial regiment under his personal say-so. "Yes. I mean religion," he explained.

"Oh." Ayres pulled his right earlobe with finger and thumb, musing "I was a first class agnostic. Graduated, or should I say demoted? From an Atheist academy."

The captain kept looking at

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the stars. "You use the word 'was,' Ayres. You emphasize that word."

Ayres half-smiled. "Sure. I mean—yes, sir. But this is my first trip, sir, so that changes things."

"Does it?"

"Yes it does, sir."

The captain rocked casually on his heels. "How's that, Ayres."

"You know the tale as well as I, sir. It's an old tale. And a good one, I might add. To put it one way: 'A Baptist is an atheist who took a trip to the Moon.'"

"That holds true for Methodists, Episcopalians and Holy Rollers, doesn't it?"

"It does, sir."

The captain made a noise that sounded like laughter. "We're all the same. Every damned one of us, Ayres. Hard-shelled God-fighters, good and true, when we're home in Brooklyn and Waushawkee. Take away land and gravity, though, and we're babes, undiapered and crying in a long dark night. Hell, there's not a man rocketing today who isn't religious, Ayres!"

"Are you religious, Captain?"

Lamb closed his mouth, looked out the port straight ahead. He raised one small-boned hand, spreading it in a measured movement. "It's always the same, Ayres. The first trip converts us. The very first trip. All you have to do is stand here for fifteen minutes or half an hour looking at space, feeling how insignificant you are flying around like a gnat in the middle of it, looking at those damned wonderful stars, and first thing you know you're down on your knees, crying your eyes out, with a hot stomach, a wild head and a humble attitude forever after."

Lamb pulled back from himself suddenly, snapped around, stalked to a down-ladder, grabbed a rung and glared at Ayres. "And so," he pointed out, "you'll notice that I never look at the stars too long! I've a ship to run—no time for it. And in case you believe all I tell you—go to hell! I should demerit you for questioning a superior!"

Lamb dropped down the rungs like a weight.

Ayres sat there a moment, trying to computate. After a while he looked up at the star-port. His eyes dilated very dark and wide. He stood up. He walked across the computation room and stood there, staring out. He looked like he was listening to music. His lips moved.

"What did the Cap say? Stand here fifteen minutes or half an hour? Why, hell—" He bent his knees until they touched the deck. "I got the Cap's time beat all hollow!"

Good blood. Good leucocyte. Good Ayres.

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Mars came up ahead, the first really intense gravity I had felt since leaving earth and moon behind. It came up like a ruddy drop of dried blood on the void. Mass is the sexual drive of space, and gravity the intensified yearning of that mass, the gravitic libido of one tremendous body for the love, the following of any and all smaller bodies who transgress its void boundaries. I have heard the simple men within me speak of a planet as one speaks of a queen bee. The ultimate gravity toward which all smaller gravities and bodies yearn. Merciless harlot, mating with all, leading all on to destruction. Queen bee followed by the swarms. And now I was part of a swarm, the first of many yet to follow, answering the urge of one gravity, refusing another.

But still the poison was in me. And no way possible for Captain Lamb's crew to know of it. Time ticked on my console-chronometers and swung by, imperceptibly majestic in the moves of the stars.

Captain Lamb went down to the engine rooms, examined my heart and my auxiliaries. Bitingly, he commented and instructed, interspersing that with vituperative barks. Then he hopped up the rungs to the galley for something to eat.

Belloc and Larion stayed below.

"First now, Belloc, you checked the life-boats?"

"I did. Number Three boat's ready. I fixed it an hour ago."

"Good. Now. . . ."

THE Slop put out a bowl of soup for Captain Lamb. Lamb pursed his lips to a spoon of it, and smacked them in appreciation. "Slop?"

"Yes, sir?" Slop wiped greasy hands on a large towel.

"Did you invent the gravity soupbowl and gravity spoon?"

Slop looked at his feet. "I did, sir."

"An admirable invention, Slop. I recall the day when all rocket liquids were swilled by suction from a nippled bottle. Made me feel like a god-damned baby doing it."

Slop chuckled deep, as he returned to cleaning the mess-plates. "Ship gravity wasn't strong enough to hold soup down, so I thunk up the gravity spoon in my spare time. It helped."

The captain ate in silence. After a moment he said, "I must be getting old, Slop. I think I'm sick."

"Captain."

Lamb waved his spoon, irritated. "Oh, nothing as bad as all that. I mean I'm getting soft-headed. Today, I feel—how should I put it? Dammit to hell, it's hard finding words. Why did

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you come along on this war-rocket, Slop?"

Slop twisted his towel tight. "I had a little job to do with some Martians who killed my parents three years ago."

"Yes," said the captain.

Belloc and Larion were down below.

Slop looked at his chief. At the tight little brown face that could have been thirty-five as easily as forty or fifty.

Lamb glared up at him, quick. Slop gulped. "Pardon me."

"Uh?"

"I was just wondering . . ."

"About . . . ?"

Belloc. Larion. Belloc down below. Larion climbing rungs, on his way to get the time-bombs. Mars looming ahead. Time getting shorter, shorter.

In a dozen parts of my body things were going on at an oblivious, unsuspecting norm. Computators, gunners, engineers, pilots performed their duties as Lamb and Slop talked casual talk in the galley. While Larion muscled it up the rungs toward his secreted time-explosives.

Slop said, "About why you became captain on a war-rocket, yourself, sir?"

"Me?" Lamb snorted, filled his mouth half a dozen times before answering very slowly. "Five years ago I was in a Blue Canal liquor dive on Mars. I met a Martian girl there . . ."

"Oh, yes . . ."

"Yes, *nothing*, you biscuit-burner! Damn but she was sweet. With a temper like a very fine cat-animal, and morals to match. Hair like glossy spider-silk, eyes like that deep cold blue canal water. I wanted to bring her back to Earth with me. The war came, I was recalled and—"

"And someday," finished Slop, "when you've helped get the war over, you'll go looking for her. And being at Deimos-Phobos Base, maybe you can sneak down and kidnap her sometime."

Lamb ate awhile, making motions. "Pretty childish, isn't it?"

"No, I guess it's all right if she's still waiting."

"She is—if I know Yrela, she is."

Ayres in Computation.

Mars off in space, blood-red and growing.

Lamb in the galley.

Hillary and Conrad in control room One!

And down below, where all of my power grew and expanded and burst out into space, I felt the vibration of Belloc. And coming up the ladder to the supply-room—Larion.

Larion passed through the galley. "Sir."

Lamb nodded without looking up from his meal.

Larion proceeded up to Computation, passed through Compu-

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tation, whistling, and lingered in Supply AC.

Space vibrated with my message.

My guns were being trimmed, oiled and ready. Ammunition passed up long powered tracks from Locker Five to Blister Fourteen. Scarlet ammunition. Men sweated and showed their teeth and swore. Belloc waited down below, his face twitching its nerves, in the engine room. The captain ate his meal. I drove through space. Ayres computated. Belloc waited. Captain, eating. Space. Larion. Time-bombs. Captain. Belloc. Guns. Waiting. Waiting. Driving.

The metal of my structure was sickened, stressing, striving inward, trying to shout, trying to tell all that I knew in my positive-negative poles, in my subatomic awareness, in my neutronic vibrations.

But the blood of my body moved with a mind of its own, pulsing from chamber to chamber in their sweating, greasy togs, with their waiting, tightened faces. Pulsing nervously. Pulsing, pulsing, pulsing, not knowing that soon poison might spread through every and all of my compartments.

And there was a girl named Alice waiting in York Port. And the memory of two parents dead. And on Mars a cool-eyed Martian dancing girl, still dancing, perhaps, with silver bells on her thumbs, tinkling. Mars was close. I made an angry jolt and swerve in space. I leaped with metal frustration!

Around and around and around went my coggery, the flashing, glinting muscles of my soul's heart. Oil surged through my metal veins. And Belloc was down below, smoking one cigarette after another.

I thought about Ayres, about Captain Lamb and the way he barked, about Ayres and the way he kneeled and felt what he had to feel. About Hillary and Conrad thinking about a woman's lips. About The Slop troubling to invent a gravity soup plate.

I thought about Belloc waiting.

And Mars getting near. And about the war I had never seen but always heard about. I wanted to be part of it. I wanted to get there with Lamb and Hillary and The Slop!

The Slop took away the plate the captain had cleansed with his spoon. "More?"

Lamb shook his head. "No. Just a hunk of fruit now. An apple or something." He wiped his small mouth with his hand.

"Okay," said the Slop.

At that moment there was a hiss, an explosion.

Somebody screamed, somewhere.

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I knew who it was and where it was.

The captain didn't. "Dammit to hell!" he barked, and was out of the galley in three bounds. Slop dropped a soup kettle, following.

WARNING bells clamored through me. Ayres, in Computation, grinding out a parabolic problem, jerked his young, pink face and fear came into it instantly. He arose and tried walking toward the drop-rungs, but he couldn't do it. He didn't have legs for the job.

Conrad scuttled down the rungs, yelling. He vanished toward the engine room; the floor ate him up.

Hillary grabbed the ship-controls and froze to them, listening and waiting. He said one word. "Alice—"

Slop and the captain got there first in Section C.

"Cut that feed valve!" yelled Lamb. The Slop grasped a valve-wheel glinting on the wall in chubby fingers, twisted it, grunting.

The loud, gushing noise stopped. Steam-clouds billowed in my heart, wrapping Captain Lamb and The Slop tight and coughing. Conrad fell the rest of the way down the ladder into my heart, and the steam began to clear away as my vacuum ventilators began humming.

When the steam cleared they saw Belloc.

The Slop said, "Gahh. That's bad. That's *very* bad."

Conrad said, "How'd it happen? Looks like he died quick."

Lamb's leather-brown face scowled. "Quick is the word. That oil-tube burst, caught him like a steel whip across the bridge of his nose. If that hadn't killed him, scalding oil would have."

Crumpled there, Belloc said not a word to anybody. He just bled where the oil pipe had caught him on the nose and cheek and plunged on back into his subconscious. That was all there was to him now.

Captain Lamb cursed. Conrad rubbed his cheek with the trembling flat of his hand. "I checked those oil-lines this morning. They were okay. I don't see—"

Footsteps on the rungs. Larion came down, feet first, quick, and turned to face them. "What happened . . . ?" He looked as if somebody had kicked him in the stomach when he saw Belloc lying there. His face sucked bone-white, staring. His jaw dropped down and he said, emptily, "You killed him. You—found out what we were going to do—and you killed him . . ."

The Slop's voice was blank. "What?"

"You killed him," repeated Larion. He began to laugh. He

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opened his mouth and let the laughter come out in the steam-laden room. He darted about suddenly and leaped up the rungs. "I'll show you!"

"Stop him!" said Lamb.

Conrad scuttled up at Larion's heels. Larion stopped and kicked. Conrad fell, heavy, roaring. Larion vanished. Conrad got up, yelling, and pursued. Captain Lamb watched him go, not doing anything himself, just watching. He just listened to the fading feet on the rungs, going up and up.

The deck and hull quivered under Lamb's feet.

Somebody shouted.

Conrad cried, from far off, "Watch it!"

There was a thumping noise.

Five minutes later Conrad came down the ladder lugging a time-bomb. "It's a good thing that oil-pipe burst, Cap. I found this in Supply AC. That's where Larion was hiding it. Him and Belloc—"

"What about Larion?"

"He tried to escape through an emergency life-boat air-lock. He opened the inner door, slammed it, and a moment later when I opened that same inner door, I almost got killed the same way—"

"Killed?"

"Yeah. The damned fool must have opened the outer door while he was still standing in the middle of the air-lock. Space suction yanked him right outside. He's gone for good."

The Slop swallowed thickly. "That's funny, he'd do that. He knew how those air-locks work, how dangerous they are. Must've been some mistake, an accident, or something . . ."

"Yeah," said Captain Lamb. "Yeah."

They held Belloc's funeral a few hours later. They thrust him overboard, following Larion into space.

My body was cleansed. The organic poison was eliminated.

Mars was very close now. Red. Bright red.

In another six hours we would be engaged in conflict.

I had my taste of war. We drove down, Captain Lamb and his men inside me, and I put out my arms for the first time, and I closed fingers of power around Martian ships and tore them apart, fifteen of them—who tried to prevent our landing at Deimos-Phobos Base. I received only minor damage to my section F. Plates.

Scarlet ammunition went across space, born out of myself. Child out of metal and exploding with blazing force, wounding the stratas of emptiness in the void. I exhilarated in my new found arms of strength. I screamed with it. I talked rocket

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talk to the stars. I shook Deimos Base with my ambitious drive. I dissected Martian ships with quick calm strokes of my ray-arms, and spunky little Cap Lamb guided my vitals, swearing at the top of his lungs!

I had come into my own. I was fully grown, fully matured. War and more war, plunging on for month after month.

And young Ayres collapsed upon the computation deck one day, just like he was going to say a prayer, with a shard of shrapnel webbed in his lungs, blood dropping from his parted lips instead of a prayer. It reminded me of that day when first he had kneeled there and whispered, "Hell, I got the captain's time beat all hollow!"

Ayres died.

They killed Conrad, too. And it was Hillary who took the news back to York Port to the girl they had both loved.

After fourteen months we headed home. We landed in York Port, recruited men to fill our vacancies, and shot out again. We knocked holes in vacuum. We got what we wanted out of war, and then, quite suddenly one day space was silent. The Martians retreated, Captain Lamb shrugged his fine-boned little shoulders and commanded his men down to the computation room:

"Well, men, it's all over. The war's over. This is your last trip in this damned nice little war-rocket. You'll have your release as soon as we take gravity in York Port. Any of you want to stay on—this ship is being converted into cargo-freighting. You'll have good berths."

The crew muttered, shifting their feet, blinking their eyes. Cap said:

"It's been good. I won't deny it. I had a fine crew and a sweet ship. We worked hard, we did what we had to do. And now it's all over and we have peace. Peace."

The way he said that word it meant something.

"Know what that means?" said Lamb. "It means getting drunk again, as often as you like; it means living on earth again, forgetting how religious you ever were out in space, how you were converted the first trip out. It means forgetting how non-gravity feels on your guts. It means a lot. It means losing friends, and the hard good times brawling at Phobos-Deimos Base.

"And it means leaving this rocket."

The men were silent.

"I want to thank you. You, Hillary. And you, Slop. And you, Ayres, for signing on after your brother died. And you, Thompson, and McDonald and Priory. And that's about all. Stand by to land!"

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WE landed without fanfare. The crew packed their duffles and left ship. Cap lingered behind awhile, walking through me with his short, brisk strides. He swore under his breath, twisted his small brown face. After awhile he walked away, too.

I wasn't a war-rocket anymore.

They crammed me with cargo and shipped me back and forth to Mars and Venus for the next five years. Five long years of nothing but spider-silk, hemp and mineral-ore, a skeleton crew and a quiet voyage with nothing happening. Five years.

I had a new captain, a new, strange crew, and a strange peaceful routine going and coming across the stars.

Nothing important happened until July 17th, 2243.

That was the day I cracked up on this wild pebbled little planetoid where the wind whined and the rain poured and the silence was too damned silent.

The crew was crushed to death inside me, and I just lay here in the hot sun and the cold night wind, waiting for rescue that never seemed to come.

My life blood was gone, dead, crushed, killed. A rocket thinks in itself, but it lives through its crew and its captain. I had been living on borrowed time since Captain Lamb went away and never came back.

I lay here, thinking about it all. Glorious months of war, savage force and power of it. The wild insanity of it. I waited. I realized how out of place I was here, how helpless, like a gigantic metal child, an idiot who needs control, who needs pulsing human life blood.

Until very early one morning after the rain I saw a silver speck on the sky. It came down fast—a one-man Patrol inspector, used for darting about in the asteroid belt.

The ship came down, landing about one hundred yards away from my silent hulk. A small man climbed out of it.

He came walking up the pebbled hill very slowly, almost like a blind man.

He stood at my air-lock door. I heard him say, "Hello—"

And I knew who it was. Standing there, not looking much older than when first he had shipped aboard me, little and lean and made of copper wire and brown leather.

Captain Lamb.

After all these years. Dressed in a black patrol uniform. An inspector of asteroids. No cargo job for him. A dangerous one instead. Inspector.

His lips moved.

"I heard you were lost four months ago," he said to me, quietlike. "I asked for an appointment

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to Inspector. I thought—I thought I'd like to hunt for you myself. Just—just for old times sake."

He opened my air-lock, laughing quietly, and walked inside me with his quick, short strides. It felt good to have him touch me again, to hear his clipped voice ring against my hull again. He climbed the rungs to my control room and stood there.

"Ayres!"

"Aye, sir!"

"Hillary!"

"Aye, sir!"

"Slop!"

"Aye, sir!"

"Conrad!"

"Aye, sir!"

"Where in hell is everybody?" raged Lamb, staring about the control room.

Silence. He quit yelling for people who couldn't answer him, who would never answer him again, and he sat down in the control chair and talked to me. He told me what he'd been doing all these years. Hard work, good pay.

"But it's not like it used to be," he told me. "Not by a stretched length. I think though—I think there'll be another war soon. Yes, I do." He nodded briskly. "And how'd you like to be in on it, huh? You can, you know."

I said nothing. My beams stretched and whined in the hot sun. That was all. I waited.

"Things are turning bad on Venus. Colonials revolting. You're old-fashioned, but you're proud and tall, and a fighter."

He didn't stay much longer, except to tell me what would happen. "I have to go back to Earth, get a rescue crew and try to lift you under your own power next week. And so help me God, I'll be captain of you again and we'll beat those Venerians!"

He walked out of the air-lock with eyes that were anything but dry. He patted my hull. "After all—I guess you were the only thing I ever really loved . . ."

He went away into the sky, then.

And so I'm lying here for a few more days, waiting with a stirring of my old anticipation and wonder and excitement. I've been dead a while. And Cap has showed up again to slap me back to life. Next week he'll be here with the repair crew and they'll go over me from seam to seam.

And someday soon Cap Lamb'll stomp into my air-lock, cry, "Rap her tight!" and we'll be off to war again! Off to war! Living and breathing and moving again. In the meantime I can think.

I've often wondered about that blue-eyed Martian dancing girl.

I guess I read it in Captain Lamb's eyes, how that turned out.

I wish I could ask him.

But at least I won't have to lie here forever. *I'll be moving on—next week!* **THE END**

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Devolution

By EDMOND HAMILTON

Illustrated by MOREY

EDMOND HAMILTON and his deservedly famed wife, Leigh Brackett, are infrequently represented in science fiction magazines today, both being occupied with writing scripts for motion pictures and television. Hamilton is best remembered as a writer of vigorous action science fiction, with the stress on a hero who saves Earth invasion from space. This reputation obscures the fact that few living writers of science fiction have shown superior ingenuity in the presentation of new concepts (or clever twists on old ones) than has Edmond Hamilton. While dedicated to saving our globe from its —perhaps richly deserved?—disaster, Edmond Hamilton has tried not to be corny about it. The result has been that most of Hamilton's stories leave you with something to think about. Devolution *is no exception. It provides a good counter-irritant for Darwin's theories, but one which the Fundamentalists would be equally loathe to accept.*

ROSS had ordinarily the most even of tempers, but four days of canoe travel in the wilds of North Quebec had begun to rasp it. On this, their fourth stop on the bank of the river to camp for the night, he lost control and for a few moments stood and spoke to his two companions in blistering terms.

His black eyes snapped and his darkly unshaven handsome young face worked as he spoke. The two biologists listened to him without reply at first. Gray's blond young countenance was indignant but Woodin, the older biologist, just listened impassively with his gray eyes level on Ross' angry face.

When Ross stopped for breath, Woodin's calm voice struck in. "Are you finished?"

Ross gulped as though about to

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resume his tirade, then abruptly got hold of himself. "Yes, I'm finished," he said sullenly.

"Then listen to me," said Woodin, like a middle-aged father admonishing a sulky child. "You're working yourself up over nothing. Neither Gray nor I have made one complaint yet. Neither of us have once said that we disbelieve what you told us."

"You haven't *said* you disbelieve, no!" Ross exclaimed with anger suddenly reflaring. "But don't you suppose I can tell what you're thinking?"

"You think I told you a fairy story about the things I saw from my plane, don't you? You think I dragged you two up here on a wild-goose chase, to look for incredible creatures that could never have existed. You believe that, don't you?"

"Oh, *damn* these mosquitoes!" said Gray, slapping viciously at his neck and staring with unfriendly eyes at the aviator.

Woodin took command. "We'll go over this after we've made camp. Jim, get out the duffle-bags. Ross, will you rustle firewood?"

They both glared at him and at each other but grudgingly they obeyed. The tension eased for a while.

By the time darkness fell on the little riverside clearing, the canoe was drawn up on the bank, their trim little balloon-silk tent had been erected, and a fire crackled in front of it. Gray fed the fire with fat knots of pine while Woodin cooked over it coffee, hot cakes and the inevitable bacon.

The firelight wavered feebly up toward the tall trunks of giant hemlocks that walled the little clearing on three sides. It lit up their three khaki-clad, stained figures and the irregular white block of the tent. It gleamed out there on the riffles of the McNorton, chuckling softly as it flowed on toward the Little Whale.

They ate silently, and as wordlessly cleaned the pans with bunches of grass. Woodin got his pipe going, the other two lit crumpled cigarettes, and then they sprawled for a time by the fire, listening to the chuckling, whispering river-sounds, the sighing sough of the higher hemlock branches, the lonesome cheeping of insects.

Woodin finally knocked his pipe out on his bootheel and sat up.

"All right," he said, "now we'll settle this argument we were having."

Ross looked a little shamefaced. "I guess I got too hot about it," he said subduedly. Then added, "But all the same, you fellows do more than half disbelieve me."

Woodin shook his head calmly.

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He stood there in a circle of the glistening monsters, his hands and body trembling violently.

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"No, we don't, Ross. When you told us that you'd seen creatures unlike anything ever heard of while flying over this wilderness, Gray and I both believed you."

"If we hadn't, do you think two busy biologists would have dropped their work to come up here with you into these unending woods and look for the things you saw?"

"I know, I know," said the aviator unsatisfiedly. "You think I saw something queer and you're taking a chance that it will be worth the trouble of coming up here after."

"But you don't believe what I've told you about the looks of the things. You think that sounds too queer to be true, don't you?"

For the first time Woodin hesitated in answering. "After all, Ross", he said indirectly, "one's eyes can play tricks when you're only glimpsing things for a moment from a plane a mile up."

"Glimpsing them?" echoed Ross. "I tell you, man, I saw them as clearly as I see you. A mile up, yes, but I had my big binoculars with me and was using them when I saw them.

"It was near here, too, just east of the forks of the McNorton and the Little Whale. I was streaking south in a hurry for I'd been three weeks up at that government mapping survey on Hudson's Bay. I wanted to place myself by the river forks so I brought my plane down a little and used my binoculars.

"Then, down there in a clearing by the river, I saw something glisten and saw—the things. I tell you, they were incredible, but just the same I saw them clear! I forgot all about the river-forks in the moment or two I stared down at them.

"They were big, glistening things like heaps of shining jelly, so translucent that I could see the ground through them. There were at least a dozen of them and when I saw them they were gliding across that little clearing, a floating, flowing movement.

"Then they disappeared under the trees. If there'd been a clearing big enough to land in within a hundred miles I'd have landed and looked for them, but there wasn't and I had to go on. But I wanted like the devil to find out what they were and when I took the story to you two, you agreed to come up here by canoe to search for them. But I don't think now you've ever fully believed me."

WOODIN looked thoughtfully into the fire. "I think you saw something queer, all right, some queer form of life. That's why I was willing to come up on this search."

"But things such as you describe, jelly-like, translucent,

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gliding over the ground like that —there's been nothing like that since the first protoplasmic creatures, the beginning of life on earth, glided over our young world ages ago."

"If there were such things then, why couldn't they have left descendants like them?" Ross argued.

Woodin shook his head. "Because they all vanished ages ago, changed into different and higher forms of life, starting the great upward climb of life that has reached its height in man.

"Those long-dead, single-celled protoplasmic creatures were the start, the crude, humble beginnings of our life. They passed away and their descendants were unlike them. We men are their descendants."

Ross looked at him, frowning. "But where did they come from in the first place, those first living things?"

Again Woodin shook his head. "That is one thing we biologists do not know and can hardly speculate upon, the origin of those first protoplasmic forms of life.

"It's been suggested that they rose spontaneously from the chemicals of earth, yet this is disproved by the fact that no such things rise spontaneously *now* from inert matter. Their origin is still a complete mystery. But, however, they came into existence on earth, they were the first of life, our distant ancestors."

Woodin's eyes were dreaming, the other two forgotten, as he stared into the fire, seeing visions.

"What a glorious saga it is, that wonderful climb up from crude protoplasm creatures to man! A marvelous series of changes that has brought us from that first low form to our present splendor."

"And it might not have occurred on any other world but earth! For science is now almost sure that the cause of evolutionary mutations is the radiations of the radioactive deposits inside the earth, acting upon the genes of all living matter."

He caught a glimpse of Ross' uncomprehending face, and despite his raptness smiled a little.

"I can see that means nothing to you. I'll try to explain. The germ-cell of every living thing on earth contains in it a certain number of small, rod-like things which are called chromosomes.

"These chromosomes are made up of strings of tiny particles which we call genes. And each of these genes has a potent and different controlling effect upon the development of the creature that grows from that germ-cell.

"Some of these genes control the creature's color, some control his size, some the shape of his limbs, and so on. Every charac-

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teristic of the creature is predetermined by the genes in its original germ-cell.

"But now and then the genes in a germ-cell will be greatly different from the genes normal to that species, and when that is so, the creature that grows from that germ-cell will be greatly different from the fellow-creatures of its species. He will be, in fact, of an entirely new species. That is the way in which new species come into existence on earth, the method of evolutionary change.

"Biologists have known this for some time and they have been searching for the cause of these sudden great changes, these mutations, as they are called. They have tried to find out what it is that affects the genes so radically.

"They have found experimentally that X-Rays and chemical rays of various kinds, when turned upon the genes of a germ-cell, will change them greatly. And the creature that grows from that germ-cell will thus be greatly changed, a mutant.

"Because of this, many biologists now believe that the radiation from the radioactive deposits inside earth, acting upon all the genes of every living thing on earth, are what cause the constant change of species, the procession of mutations, that has brought life up the evolutionary road to its present height.

"That is why I say that on any other world but earth, evolutionary progress might never have happened. For it may be that no other world has similar radioactive deposits within it to cause by gene-effect the mutations. On any other world, the first protoplasmic things that began life might have remained forever the same, down through endless generations.

"How thankful we ought to be that it was not so on earth! That mutation after mutation has followed, life ever changing and progressing into new and higher species, until the first crude protoplasm things have advanced through countless changing forms into the supreme achievement of man!"

WOODIN'S enthusiasm had carried him away as he talked but now he stopped, laughing a little as he relit his pipe.

"Sorry that I lectured you like a college freshman, Ross. But that's my chief subject of thought, my *idée fixé*, that wonderful upward climb of life through the ages."

Ross was staring thoughtfully into the fire. "It does seem wonderful the way you tell it. One species changing into another, going higher all the time—"

Gray stood up by the fire and stretched. "Well, you two can wonder over it but this crass ma-

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terialist is going to emulate his remote invertebrate ancestors and return to a prostrate position. In other words, I'm going to bed."

He looked at Ross, a doubtful grin on his blond young face, and said, "No hard feelings now?"

"Forget it," the aviator grinned back. "The paddling *was* hard today and you fellows did look *mighty* skeptical.

"But you'll see! To-morrow we'll be at the forks of the Little Whale and then I'll bet we won't scout an hour before we run across those jelly-creatures.

"I hope so," said Woodin yawningly. "Then we'll see just how good your eyesight is from a mile up, and whether you've yanked two respectable scientists up here for nothing."

Later as he lay in his blankets in the little tent, listening to Gray and Ross snore and looking sleepily out at the glowing fire embers, Woodin wondered again about that.

What had Ross actually seen in that fleeting glimpse from his speeding plane? Something queer, Woodin was sure of that, so sure that he'd come on this hard trip to find it. But what exactly?

Not protoplasmic things such as he described. That couldn't be, of course. Or could it? If things like that had existed once, why couldn't they—couldn't they—

Woodin didn't know he'd been sleeping until he was wakened by Gray's cry. It wasn't a nice cry, it was the hoarse yell of someone suddenly assaulted by bone-freezing terror.

He opened his eyes at that cry to see the Incredible looming against the stars in the open door of the tent. A dark, amorphous mass humped there in the opening, glistening all over in the starlight, and gliding into the tent. Behind it were others like it.

Things happened very quickly then. They seemed to Woodin to happen not consecutively but in a succession of swift, clicking scenes like the successive pictures of a motion picture film.

Gray's pistol roared red flame at the first viscous monster entering the tent, and the momentary flash showed the looming, glistening bulk of the thing, and Gray's panic-frozen face, and Ross clawing in his blankets for his pistol.

THEN the scene was over and instantly there was another one, Gray and Ross both stiffening suddenly as though petrified, both falling heavily over. Woodin knew they were both dead now, but didn't know how he knew it. The glistening monsters were coming on into the tent.

He ripped up the wall of the tent and plunged out into the

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cold starlight of the clearing. He ran three steps, he didn't know in what direction, and then he stopped. He didn't know why he stopped dead but he did.

He stood there, his brain desperately urging his limbs to fly, but his limbs would not obey. He couldn't even turn, could not move a muscle of his body. He stood, his face toward the starlit gleam of the river, stricken by a strange and utter paralysis.

Woodin heard rustling, gliding movements in the tent behind him. Now from behind, there came into the line of his vision several of the glistening things. They were gathering around him, a dozen of them it seemed. He now could see them quite clearly.

They weren't nightmares, no. They were real, poised here around him, humped, amorphous masses of viscous, translucent jelly. Each was about four feet tall and three in diameter, though their shapes kept constantly changing slightly, making dimensions hard to guess.

At the center of each translucent mass was a dark, disk-like blob or nucleus. There was nothing else to the creatures, no limbs or sense-organs. He saw that they could protrude pseudopods, though, for two, who held the bodies of Gray and Ross in such tentacles, were now bringing them out and laying them down beside Woodin.

Woodin, still quite unable to move a muscle, could see the frozen, twisted faces of the two men, and could see the pistols still gripped in their dead hands. And then as he looked on Ross' face he remembered.

The things the aviator had seen from his plane, the jelly-creatures they had come north to search for, they were the monsters around him! But how had they killed Ross and Gray, how were they holding him petrified like this, who were they?

"We will permit you to move but you must not try to escape."

Woodin's dazed brain numbed further with wonder. Who had said those words to him? He had heard nothing, yet he had *thought* he heard.

"We will let you move but you must not attempt to escape or harm us."

He *did* hear those words in his mind, even though his ears heard no sound. And now his brain heard more.

"We are speaking to you by transference of thought impulses. Have you sufficient mentality to understand us?"

Mind? Minds in these things? Woodin was shaken by the thought as he stared at the glistening monsters.

His thought apparently had reached them. "Of course we have minds," came the thought answer into his brain. "We are

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going to let you move, now, but do not try to flee."

"I—I won't try," Woodin told himself mentally.

At once the paralysis that held him abruptly lifted. He stood there in the circle of the glistening monsters, his hands and body trembling violently.

There were ten of them, he saw now. Ten monstrous, humped masses of shining, translucent jelly, gathered around him like cowled and faceless genii come from some haunt of the unknown. One stood closer to him than the others, apparently spokesman and leader.

Woodin looked slowly around their circle, then down at his two dead companions. In the midst of the unfamiliar terrors that froze his soul, he felt a sudden aching pity as he looked down at them.

Came another strong thought into Woodin's mind from the creature closest him. "We did not wish to kill them, we came here simply to capture and communicate with the three of you.

"But when we sensed that they were trying to kill us, we slew quickly. You, who did not try to kill us but fled, we harmed not."

"What—what do you want with us, with me?" Woodin asked through dry lips.

There was no mental answer this time. The things stood unmoving, a silent ring of brooding, unearthly figures.

Woodin felt his mind snapping under the strain of the silence and he asked the question again, screamed it.

This time the mental answer came. "I did not answer, because I was probing your mentality to ascertain whether you are of sufficient intelligence to comprehend our ideas.

"While your mind seems of an exceptionally low order, it seems possible that it can appreciate enough of what we wish to convey to understand us.

"Before beginning, however, I warn you again that it is quite impossible for you to escape or to harm any of us and that attempts to do so will result disastrously for you. It is apparent you know nothing of mental energy, so I will inform you that your two fellow-creatures were killed by the sheer power of our wills, and that your muscles were held unresponsive to your brain's commands by the same power. By our mental energy we could completely annihilate your body, if we chose.

THERE was a pause, and in that little space of silence Woodin's dazed brain clutched desperately for sanity, for steadiness.

Then came again that mental voice that seemed so like a real voice speaking in his brain.

"We are children of a galaxy

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whose name, as nearly as it can be approximated in your tongue, is Arctar. The galaxy of Arctar lies so many million light-years from this galaxy that it is far around the curve of the sphere of the three-dimensional cosmos.

"We came to dominance in that galaxy long ages ago. For we were creatures who could utilize our mental energy for transport, for physical power, for producing almost any effect we required. Because of this we rapidly conquered and colonized that galaxy, travelling from sun to sun without need of any vehicle.

"Having brought all the matter of the galaxy Arctar under our control, we looked out upon the realms beyond. There are approximately a thousand million galaxies in the three-dimensional cosmos, and it seemed fitting to us that all the matter in the cosmos should in time be brought under our control.

"Our first step was to proliferate our numbers so as to multiply our number to that required for the great task of colonization of the cosmos. This was not difficult since, of course, reproduction with us is a matter of mere fission. When the requisite number of us were ready, they were divided into four forces.

"Then the whole sphere of the three-dimensional cosmos was quartered out among those four forces. Each was to colonize its division of the cosmos and so in their tremendous hosts they set out from Arctar, in four different directions.

"A part of one of these forces came to this galaxy of yours eons ago and spread out deliberately to colonize all its habitable worlds. All this took great lengths of time, of course, but our lives are of length vastly exceeding yours, and we comprehend that racial achievement is everything and individual achievement is nothing. In the colonization of this galaxy, a force of several million Arctarians came to this particular sun and, finding but this one planet of its nine nearer worlds habitable, settled here.

"Now it has been the rule that the colonists of all these worlds throughout the cosmos have kept in communication with the original home of our race, the galaxy Arctar. In that way, our people, who now hold the whole cosmos, are able to concentrate at one point all their knowledge and power, and from that point go forth commands that shape great projects for the cosmos.

"But from this world no communications have ever been received since shortly after the force of colonizing Arctarians came here. When this was first noted the matter was deferred, it being thought that within a few more million years report would surely be made from this world

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too. But still no word came, until after more than a thousand million years of this silence the directing council at Arctar ordered an expedition sent to this world to ascertain the reason for such silence on the part of its colonists.

"We ten form that expedition and we started from one of the worlds of the sun you call Sirius, a short distance from your own sun, where we too are colonists. We were ordered to come with full speed to this world and ascertain why its colonists had made no report. So, wafting ourselves by mental energy through the void, we crossed the span from sun to sun and a few days ago arrived on your world.

"Imagine our perplexity when we floated down here on your world! Instead of a world peopled in every square mile by Arctarians like ourselves, descended from the original colonists, a world completely under their mental control, we find a planet that is largely a wilderness of weird forms of life!

"We remained at this spot where we had landed and for some time sent our vision forth and scanned this whole globe mentally. And our perplexity increased for never had we seen such grotesque and degraded forms of life as presented themselves to us. And not one Arctarian was to be seen on this whole planet.

"This has sorely perplexed us, for what could have done away with the Arctarians who colonized this world? Our mighty colonists and their descendants surely could never have been overcome and destroyed by the pitifully weak mentalities that now inhabit this globe. Yet where, when, are they?

"That is why we sought to seize you and your companions. Low as we knew your mentalities must be, it seemed that surely even such as you would know what had become of our colonists who once inhabited this world."

The thought-stream paused a moment, then raced into Woodin's mind with a clear question.

"Have you not some knowledge of what became of our colonists? Some clue as to their strange disappearance?"

The numbed biologist found himself shaking his head slowly. "I never—I never heard before of such creatures as you, such minds. They never existed on earth that we know of, and we now know almost all of the history of earth."

"Impossible!" exclaimed the thought of the Arctarian leader. "Surely you must have some knowledge of our mighty people if you know all the history of this planet."

From another Arctarian's

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mind came a thought, directed at the leader but impinging indirectly on Woodin's brain.

"Why not examine the past of the planet through this creature's brain and see what we can for ourselves?"

"An excellent idea!" exclaimed the leader. "His mentality will be easy enough to probe."

"What are you going to do?" cried Woodin shrilly, panic edging his voice.

The answering thoughts were calming, reassuring. "Nothing that will harm you in the least. We are simply going to probe into your racial past by unlocking the inherited memories of your brain.

"In the unused cells of your brain lie impressed inherited racial memories that go back to your remotest ancestors. By our mental power of command we shall make those buried memories temporarily dominant and vivid in your mind.

"You will experience the same sensations, see the same scenes, that your remote ancestors of millions of years ago saw. And we, here around you, can read your mind as we now do, and so see what you are seeing, looking into the past of this planet.

"There is no danger. Physically you will remain standing here but mentally you will leap back across the ages. We shall first push your mind back to a time approximating that when our colonists came to this world, to see what happened to them."

NO SOONER had this thought impinged on Woodin's mind than the starlit scene around him, the humped masses of the Arctarians, suddenly vanished and his consciousness seemed whirling through gray mist.

He knew that physically he was not moving yet mentally he had a sense of terrific velocity of motion. It was as though his mind was whirling across unthinkable gulfs, his brain expanding.

Then abruptly the gray mists cleared. A strange new scene took hazy form inside Woodin's mind.

It was a scene that he sensed, not saw. By other senses than sight did it present itself to his mind, yet it was none the less real and vivid.

He looked with those strange senses upon a strange earth, a world of gray seas and harsh continents of rock without any speck of life upon them. The skies were heavily clouded and rain fell continually.

Down upon that world Woodin felt himself dropping with a host of weird companions. They were each an amorphous, glistening, single-celled mass, with a dark nucleus at its center. They were Arctarians and Woodin knew that *he* was an Arctarian,

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and that he had come with the others a long way through space toward this world.

They landed in hosts upon the harsh and lifeless planet. They exerted their mentalities and by sheer telekinetic force of mental energy they altered the material world to suit them. They reared great structures and cities, cities that were not of matter but of *thought*. Weird cities built of crystallized mental energy.

Woodin could not comprehend a millionth of the activities he sensed going on in those alien Arctarian cities of thought. He realized a vast ordered mass of inquiry, investigation, experiment and communication, but all beyond his present human mind in motives and achievement. Abruptly all dissolved in gray mists again.

The mists cleared almost at once and now Woodin looked on another scene. It was later in time, this one. And now Woodin saw that time had worked strange changes upon the hosts of Arctarians, of which he still was one.

They had changed from unicellular to multicellular beings. And they were no longer all the same. Some were *sessile*, fixed in one spot, others mobile. Some betrayed a tendency toward the water, others toward the land. Something had changed the bodily form on the Arctarians as generations passed, branching them out in different lines.

This strange degeneration of their bodies had been accompanied by a kindred degeneration of their minds. Woodin sensed that. In the thought-cities the ordered process of search for knowledge and power had become confused, chaotic. And the thought-cities themselves were vanishing, the Arctarians having no longer sufficient mental energy to maintain them.

The Arctarians were trying to ascertain what was causing this strange bodily and mental degeneration in them. They thought it was something that was affecting the genes of their bodies, but what it was they could not guess. On no other world had they ever degenerated so!

That scene passed rapidly into another much later. Woodin now *saw* the scene, for by then the ancestor, whose mind he looked through, had developed eyes. And he saw that the degeneration had now gone far, the Arctarians' multicellular bodies more and more stricken by the diseases of complexity and diversification.

THE LAST of the thought-cities now were gone. The once mighty Arctarians had become hideous, complex organisms degenerating ever further, some of

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them creeping and swimming in the waters, others fixed upon the land.

They still had left some of the great original mentality of their ancestors. These monstrously-degenerated creatures of land and sea, living in what Woodin's mind recognized as the late Paleozoic age, still made frantic and futile attempts to halt the terrible progress of their degradation.

Woodin's mind flashed into a scene later still, in the Mesozoic. Now the spreading degeneration had made of the descendants of the colonists a still more horrible group of races. Great webbed and scaled and taloned creatures they were now, reptiles living in land and water.

Even these incredibly-changed creatures possessed a faint remnant of their ancestor's mental power. They made vain attempts to communicate with Arctarians far on other worlds of distant suns, to apprise them of their plight. But their minds were now too weak.

There followed a scene in the Cenozoic. The reptiles had become mammals, the downward progress of the Arctarians had gone farther. Now only the merest shreds of the original mentality remained in these degraded descendants.

And now this pitiful posterity had produced a species even more foolish and lacking in mental power than any before, ground-apes that roamed the cold plains in chattering, quarreling packs. The last shreds of Arctarian inheritance, the ancient instincts toward dignity and cleanliness and forebearance, had faded out of these creatures.

And then a last picture filled Woodin's brain. It was the world of the present day, the world he had seen through his own eyes. But now he saw and understood it as he never had before, a world in which degeneration had gone to the utmost limit.

The apes had become even weaker bipedal creatures, who had lost almost every atom of inheritance of the old Arctarian mind. These creatures had lost, too, many of the senses which had been retained even by the apes before them.

And these creatures, these humans, were now degenerating with increasing rapidity. Where at first they had killed like their animal forbears only for food, they had learned to kill wantonly. And had learned to kill each other in groups, in tribes, in nations and hemispheres. In the madness of their degeneracy they slaughtered each other until earth ran with their blood.

They were more cruel even than the apes who had preceded them, cruel with the utter cruelty of the mad. And in their pro-

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gressive insanity they came to starve in the midst of plenty, to slay each other in their own cities, to cower beneath the lash of superstitious fears as no creatures had before them.

They were the last terrible descendants, the last degenerated product, of the ancient Arctarian colonists who once had been kings of intellect. Now the other animals were almost gone. These, the last hideous freaks, would soon wind up the terrible story entirely by annihilating each other in their madness.

WOODIN came suddenly to consciousness. He was standing in the starlight in the center of the riverside clearing. And around him still were poised the ten amorphous Arctarians, a silent ring.

Dazed, reeling from the tremendous and awful vision that has passed through his mind with incredible vividness, he turned slowly from one to the other of the Arctarians. Their thoughts impinged on his brain, strong, somber, shaken by terrible horror and loathing.

The sick thought of the Arctarian leader beat into Woodin's mind.

"So *that* is what became of our Arctarian colonists who came to this world! They degenerated, changed into lower and lower forms of life, until these pitiful insane things, who now swarm on this world, are their last descendants.

"This world is a world of deadly horror! A world that somehow damages the genes of our race's bodies and changes them bodily and mentally, making them degenerate further each generation. Before us we see the awful result."

The shaken thought of another Arctarian asked, "But what can we do now?"

"There is nothing we can do," uttered their leader solemnly. "This degeneration, this awful change, has gone too far for us ever to reverse it now.

"Our intelligent brothers became on this poisoned world things of horror and we cannot now turn back the clock and restore them from the degraded things their descendants are."

Woodin found his voice and cried out thinly, shrilly.

"It isn't true!" he cried. "It's all a lie, what I saw! We humans aren't the product of downward devolution, we're the product of ages of upward evolution! We must be, I tell you! Why, we wouldn't want to live, I wouldn't want to live, if that other tale was true. It can't be true!

The thought of the Arctarian leader, directed at the other amorphous shapes, reached his raving mind.

(Continued on page 194)

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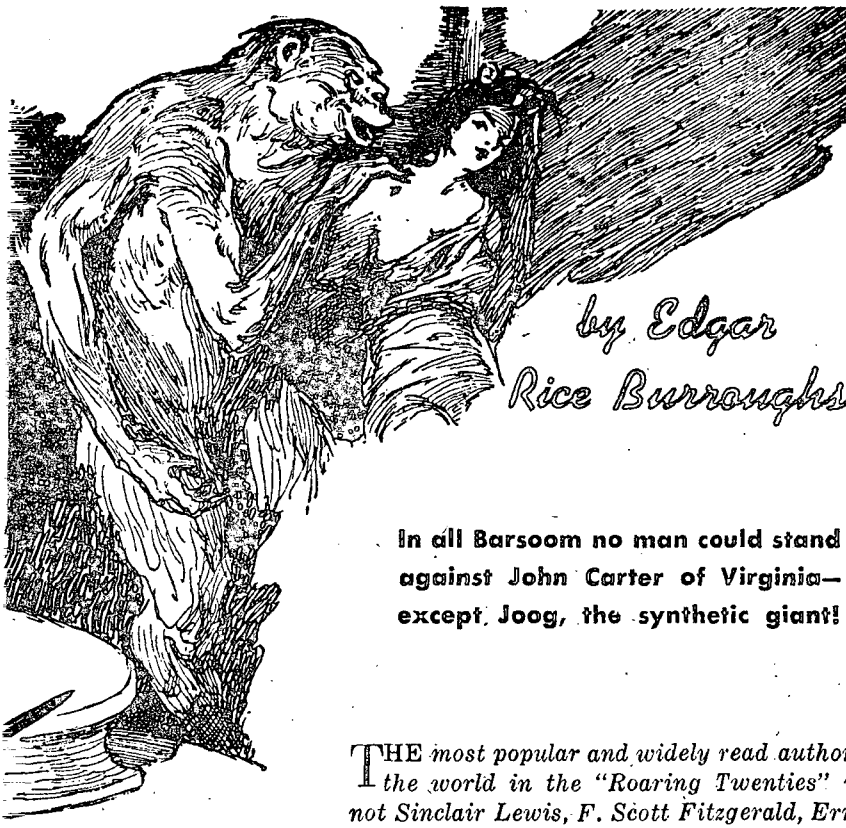
JOHN CARTER



Illustrated by Allan St. Joh

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and the GIANT of MARS



by Edgar Rice Burroughs

In all Barsoom no man could stand against John Carter of Virginia—except Joog, the synthetic giant!

At Pew Mogel's command, the great white ape grasped the lovely Dejah Thoris to him.

THE most popular and widely read author in the world in the "Roaring Twenties" was not Sinclair Lewis, F. Scott Fitzgerald, Ernest Hemingway or T. S. Eliot, but a wonderous dreamer named Edgar Rice Burroughs. This universal appeal derived originally from his creation of Tarzan, whose exploits in the movies, radio, and comic strips, as well as books, has given his name a place in many languages, and many cultures.

However, Edgar Rice Burroughs' first reputation was created not by Tarzan but through

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the appeal of John Carter, an earthman transplated to Mars. His heroic adventures on the dried sea bottoms and ancient cities of the Red Planet provided escape that charmed millions. Had Burroughs never thought of Tarzan, he still would have gained an immense audience and enjoyed a good living recounting the enthralling experiences of John Carter.

While Burroughs lived he maintained his own book publishing company which was sustained solely through the sale of his own titles. Each year he systematically issued a number of his novels, treating with equal reverence his tales of Tarzan, Mars, Venus, the earth's core or some off-beat novelty he had turned his mind to.

Eventually the reader was certain that every major effort of Burroughs would be preserved in hard covers. This sense of entertainment security was abruptly shattered when Burroughs died in March, 1950. This ended the publishing activities of Edgar Rice Burroughs, Inc. of Tarzana, Calif. A number of his marvelous adventures, unpublished in hard covers, became collector's items as the years passed. Among those stories was "John Carter and the Giant of Mars," published in AMAZING STORIES *of Jan., 1939. This story is unique, for despite its short length it is complete in itself. Usually Burroughs' novelets were written with the idea of combining them into a complete novel.*

Burroughs played a vital role in the establishment of AMAZING STORIES *when "The Land That Time Forgot," generally regarded as one of his finest efforts, was reprinted during the first year of the magazine's publication. This attracted many of his devotees to the world's first science fiction magazine. Acknowledging the fabulous popularity of Burroughs,* AMAZING STORIES' *founder, Hugo Gernsback, commissioned a new novel, "The Master Mind of Mars" for the proposed* AMAZING STORIES ANNUAL *in 1927. Burroughs' name was printed on the cover in letters larger than the magazine's title. The result was a near sell-out, and the* ANNUAL *was made a quarterly!*

During the last years of his life, the only magazines to which Edgar Rice Burroughs regularly contributed were AMAZING STORIES *and its companion,* FANTASTIC ADVENTURES. *The very last book he ever published, "Llana of Gathol," in 1948, appeared first as a series of novelets in* AMAZING STORIES. *It is regarded by many of his fans as the finest of his Mars novels.*

"John Carter and the Giant of Mars" marked the return of Burroughs to the pages of AMAZING

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STORIES *after an absence of almost 14 years. Editor Ray Palmer, who had lured him back, knew how to introduce him: ". . . Here he is again. John Carter of Virginia, the most famous earthman of all science fiction, the one and only Warlord of Mars. . . . And with him come all the old, beloved characters you've come to know and love. Dejah Thoris, the incomparable; Tars Tarkas, that savage yet tender Jeddak of the Tharks; Tardos Mors, Jeddak of Jeddaks; Kantos Kan, Admiral of the Fleet; in addition to the new characters, Joog, the giant, and Pew Mogel, most horrible creation of Ras Thavas, master of synthesis.*

"Now you can shudder once more at the roar of the banth, great many-legged lion of Mars; chill to the scream of the great white apes; ride again on the giant thoats across the dead sea bottoms of an ancient world; prowl through the ghostly ruins of dead cities beneath the two hurtling Barsoomian moons; struggle across the great Toonalian Marshes; fight side by side with the brave red warriors of Helium; hurtle through the thin air of Mars on the airships of the Barsoomian ray."

All the elements he described above are combined in this typical story by an author who had few equals in the art of creating escape from the galling tyranny of space and time.

THE moons of Mars looked down upon a giant Martian thoat as it raced silently over the soft, mossy ground. Eight powerful legs carried the creature forward in great, leaping strides.

The path of the mighty beast was guided telepathically by the two people who sat in a huge saddle that was cinched to the thoat's broad back.

It was the custom of Dejah Thoris, Princess of Helium, to ride forth weekly to inspect part of her grandfather's vast farming and industrial kingdom.

Her journey to the farm lands wound through the lonely Helium Forest where grow the huge trees that furnish lumber to the civilized nation of Mars.

Dawn was just breaking in the eastern Martian sky, and the jungle was dark and still damp with the evening dew. The gloom of the forest made Dejah Thoris thankful for the presence of her companion who rode in the saddle in front of her. Her hands rested on his broad, bronze shoulders, and the feel of those smooth, supple muscles gave her a little thrill of confidence. One of his hands rested on the jewel-encrusted hilt of his great long sword; and he sat in his saddle very straight, for he was the mightiest warrior on Mars.

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John Carter turned to gaze at the lovely face of his princess.

"Frightened, Dejah Thoris?" he asked.

"Never, when I am with my chieftain," Dejah Thoris smiled.

"But what of the forest monsters, the arboks?"

"Grandfather has had them all removed. On the last trip, my guard killed the only tree reptile I've ever seen."

Suddenly Dejah Thoris gasped, clutched vainly at John Carter to regain her balance. The mighty thoat lurched heavily to the mossy ground. The riders catapulted over his head. In an instant the two had regained their feet; but the thoat lay very still.

Carter jerked his long sword from its scabbard and motioned Dejah Thoris to stay at his back.

The silence of the forest was abruptly shattered by an uncanny roar directly above them.

"An arbok!" Dejah Thoris cried.

The tree reptile launched itself straight for the hated man-things. Carter lifted his sword and swung quickly to one side, drawing the monster's attention away from Dejah Thoris.

The earthman's first thrust sliced harmlessly through the beast's outer skin. A huge claw knocked him off balance, and he found himself lying on the ground with the great fangs at his throat.

"Dejah Thoris, get the atom gun from the thoat's back," Carter called hoarsely to the girl. There was no answer.

Calling upon every ounce of his great strength, Carter drove his sword into the arbok's neck. The creature shuddered. A stream of blood gushed from the wound. The man wriggled from under the dead body and sprang to his feet.

"Dejah Thoris! Dejah Thoris!"

Wildly Carter searched the ground and trees surrounding the dead thoat and arbok. There was no sign of Dejah Thoris. She had utterly vanished.

A shaft of light from the rising sun filtering through the foliage glistened on an object at the earthman's feet. Carter picked up a large shell, a shell recently ejected from a silent atom gun.

Springing to the dead thoat, he examined the saddle trappings. The atom gun that he had told Dejah Thoris to fire was still in its leather boot!

The earthman stooped beside the dead thoat's head. There was a tiny, bloody hole through its skull. That shot and the charging arbok had been part of a well conceived plan to abduct Dejah Thoris, and kill him!

But Dejah Thoris—how had she disappeared so quickly, so completely?

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Grimly, Carter set off at a run back to the forest toward Helium.

Noon found the earthman in a private audience chamber of Tardos Mors, Jeddak of Helium, grandfather of Dejah Thoris.

The old jeddak was worried. He thrust a rough piece of parchment into John Carter's hand. Crude, bold letters were inscribed upon the parchment; and as Carter scanned the note his eyes burned with anger: It read:

"I, Pew Mogel, the most powerful ruler on Mars, have decided to take over the iron works of Helium. The iron will furnish me with all the ships I need to protect Helium and the other cities of Barsoom from invasion. If you have not evacuated all your workers from the iron mines and factories in three days, then I will start sending you the fingers of the Royal Princess of Helium. Hurry, because I may decide to send her tongue, which wags too much of John Carter. Remember, obey Pew Mogel, for he is all-powerful."

Tardos Mors dug his nails into the palms of his hands.

"Who is this upstart who calls himself the most powerful ruler of Mars?"

Carter looked thoughtfully at the note.

"He must have spies here," he said. "Pew Mogel knew that I was to leave this morning with Dejah Thoris on a tour of inspection."

"A spy it must have been," Tardos Mors groaned. "I found this note pinned to the curtains in my private audience-chamber. But what can we do? Dejah Thoris is the only thing in life that I have left to love—" His voice broke.

"All Helium loves her, Tardos Mors, and we will all die before we return to you empty-handed."

Carter strode to the visiscreen and pushed a button.

"Summon Kantos Kan and Tars Tarkas." He spoke quickly to an orderly. "Have them come here at once."

Soon after, the huge, green warrior and the lean, red man were in the audience-chamber.

"It is fortunate, John Carter, that I am here in Helium on my weekly visit from the Plains." Tars Tarkas, the green thark, gripped his massive sword with his powerful four hands. His great, giant body loomed majestically above the others in the room.

Kantos Kan laid his hand on John Carter's shoulder.

"I was on my way to the palace when I received your summons. Already, word of our princess' abduction has spread over Helium. I came immediately," said

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the noble fellow, "to offer you my sword and my heart."

"I have never heard of this Pew Mogel," said Tars Tarkas. "Is he a green man?"

Tardos Mors grunted, "He's probably some petty outlaw or criminal who has an overbloated ego."

Carter raised his eyes from the ransom note.

"No, Tardos Mors, I think he is more formidable than you imagine. He is clever, also. There must have been an airship, with a silent motor, at hand to carry Dejah Thoris away so quickly—or perhaps some great bird! Only a very powerful man who is prepared to back up his threats would kidnap the Princess of Helium and even hope to take over the great iron works.

"He probably has great resources at his command. It is doubtful, however, if he has any intention of returning the princess or he would have included more details in his ransom note."

Suddenly the earthman's keen eyes narrowed. A shadow had moved in the adjoining room.

With a powerful leap, Carter reached the arched doorway. A furtive figure melted away into the semi-gloom of the passageway, with Carter close behind.

Seeing escape impossible, the stranger halted, sank to one knee and leveled a ray-gun at the approaching figure of the earthman. Carter saw his finger whiten as he squeezed the trigger.

"Carter!" Kantos Kan shouted, "throw yourself to the floor."

With the speed of light, Carter dropped prone. A long blade whizzed over his head and buried itself to the hilt in the heart of the stranger.

"One of Pew Mogel's spies," John Carter muttered as he rose to his feet. "Thank you, Kantos Kan."

Kantos Kan searched the body but found no clue to the man's identity.

Back in the audience-chamber, the men set to work with fierce resolve.

They were bending over a huge map of Barsoom when Carter spoke.

"Cities for miles around Helium are now all friendly. They would have warned us of this Pew Mogel if they had known of him. He has probably taken over one of the deserted cities in the dead sea bottom east or west of Helium. It means thousands of miles to search; but we will go over each mile."

Carter seated himself at a table and explained his plan.

"Tars Tarkas, go east and contact the chiefs of all your tribes. I'll cover the west with air scouts. Kantos Kan will stay in Helium as contact man. Be ready night and day with the entire Helium air force. Whoever dis-

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covers Dejah Thoris first will notify Kantos Kan of his position. Naturally, we can only communicate to each other through Kantos Kan. The wave length will be constant and secret, 2000 kilocycles."

Tardos Mors turned to the earthman.

"Every resource in my kingdom is at your command, John Carter."

"We leave at once, your majesty; and if Dejah Thoris is alive on Barsoom, we shall find her," replied John Carter.

The Search

WITHIN three hours, John Carter was standing on the roof of the Royal Airdrome giving last-minute instructions to a fleet of twenty-four fast, one-man scouts.

"Cover all the territory in your district thoroughly. If you discover anything, don't attempt to handle it by yourself. Notify Kantos Kan immediately." Carter surveyed the grim faces before him and knew that they would obey him.

"Let's go." Carter jerked a thumb over his shoulder to the ships.

The men scattered and soon their planes were speeding away from Helium.

Carter stayed on the roof long enough to check with Kantos Kan. He adjusted the earphones around his head and then signalled on 2000 kilocycles. The dots and dashes of Kantos Kan's reply began coming in immediately.

"Your signal comes in perfectly. Tars Tarkas is just leaving the city. The air fleet is mobilizing. The entire air force will stand by to come to your aid. Kantos Kan signing off."

Night found Carter cruising about five hundred miles from Helium. He was very tired. The search of several ruined cities and canals had been fruitless. The buzzing of the microset aroused him again.

"Kantos Kan reporting. Tars Tarkas has organized a complete ground search east to south; other air scouts west to south report nothing. Will acquaint you with any news that might come in. Await orders. Will stand by. Signing off."

"No orders. No news. Carter signing off."

Wearily he let the ship drift. No need to look further until the moons came up. The earthman fell into a fitful sleep.

It was midnight when the speaker sounded, jerking Carter to wakefulness. Kantos Kan was signalling again, excitedly.

"Tars Tarkas has found Dejah Thoris. She is held in a deserted city on the banks of the dead sea of Korvas." Kantos Kan gave the

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exact latitude and longitude of the spot.

"Further instructions from Tars Tarkas request the greatest secrecy in your movements. He will be at the main bridge leading into the City. Kantos Kan signing of. Come in, John Carter."

John Carter signed off with Kantos Kan, urging him to stand by constantly to be ready with the Helium Air Fleet. Now he set his gyrocompass, a device that would automatically steer him to his destination.

Several hours later, the earthman flew over a low range of hills and saw below him an ancient city on the banks of the Dead Sea. He circled his plane and dropped to the bridge where he had been instructed to meet Tars Tarkas. Long, black shadows filled a dry gulley below him.

Carter climbed out of his plane, keeping to the shadows, and made his way to the towering ruins of the city. It was so quiet that a lonely bat swooping from a tower sounded like a falling airship.

Where was Tars Tarkas? The green man should have appeared at the bridge.

At the entrance to the city, Carter stepped into the black shadow of a wall and waited. No sound broke the stillness of the quiet night. The city was like a tomb. Diemos and Phobos, the two fast-moving moons of Mars, whirled across the heavens.

Carter stopped breathing to listen. To his keen ears came the faint sound of steps—strange, shuffling steps dragging closer.

Something was coming along the wall. The earthman tensed, ready to spring to his ship. Now he could hear other steps all around him. Inside the ruins something dragged against the fallen rocks.

Then a great, heavy body dropped on John Carter from the wall above. Hot, fetid breath burned his neck. Huge, shaggy arms smothered him in their fierce embrace.

The thing hurled him to the rough cobblestones. Huge hands clutched at his throat. Carter turned his head and saw above him the face of a great, white ape.

Three of the creature's fellows were circling around Carter, striving to tie his feet with a piece of rope while the other choked him into insensibility with his four mighty hands.

Carter wriggled his feet under the belly of the ape with whom he was grappling. One mighty heave sent the creature into the air to fall, groaning and helpless, to the ground.

Like a cornered banth,* Carter

*A banth is the huge, eight-legged lion of Mars.—Ed.

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was on his feet, crouched against the wall, awaiting the attacking trio, with drawn sword.

They were mighty beasts, fully eight feet tall with long, white hair covering their great bodies. Each was equipped with four muscular arms that ended in tremendous hands armed with sharp, hooked claws. They were baring their fangs and growling viciously as they came toward the earthman.

Carter crouched low; and as the beasts sprang in, his earthly muscles sent him leaping high into the air over their heads. The earthman's heavy blade, backed by all the power of his muscles, smacked down upon one ape's head, splitting the skull wide open.

Carter hit the ground and, turning, was ready when the two apes remaining flew at him again. There was a hideous shriek as the earthman's sword sank deep into a savage heart.

As the monster sprawled to the ground, the earthman jerked free his sword.

Now the other beast turned and slunk away in fright, his eyes gleaming at Carter in the darkness as it fled down a long corridor in the adjacent building. The earthman could have sworn that he heard his own name coming from the ape's throat and mingling with its sullen growl as it fled away.

The earthman had just seized his sword when he felt a rush of air above his head. There was a blur of motion as something came down toward him.

Now he felt himself clutched about the waist; then he was jerked fifty feet into the air. Struggling for breath, Carter clutched at the thing encircling his body. It was as horny as the skin of an arbok. It had hairs as large as tree roots bristling from the horny scales.

It was a giant hand!

Joog, the Giant

JOHN CARTER found himself looking into a monstrous face.

From top of shaggy head to bottom of its hairy chin, the head measured fully fifteen feet.

A new monstrosity had come to life on Mars. Judging by the adjacent buildings, the creature must have been a hundred and thirty feet tall!

The giant raised Carter high over his head and shook him; then he threw back his face. Hideous, hollow laughter rumbled out of his pendulous lips revealing teeth like small mountain crags.

He was dressed in an ill-fitting, baggy tunic that came down in loose folds over his hips but which allowed his arms and legs to be free.

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With his other hand he beat his mighty chest.

"I, Joog. I, Joog," he kept repeating as he continued to laugh and shake his helpless victim. "I can kill! I can kill!"

Joog, the giant, commenced to walk. Carefully he stepped along the barren street, sometimes going around a building that was too high to step over.

Finally he stopped before a partially ruined palace. The ravages of time had only dimmed its beauty. Huge masses of moss and vines trailed through the masonry, hiding the shattered battlements. With a sudden thrust, Joog, the giant, shoved John Carter through a high window in the palace tower.

When Carter felt the giant's hold releasing upon him he relaxed completely. He hit the stone floor in a long roll, protecting his head with his arms. As he lay in the deep darkness of the place where he had fallen, the earthman listened while he regained his breath.

No sound came to his ears for some time; then he began to hear the heavy breathing of Joog outside his window. Once more Carter's earthly muscles, reacting to the lesser gravity of Mars, sent him leaping twenty feet to the sill of the narrow window. Here he clung and looked once again into the hairy, hideous face of the giant.

"I, Joog. I, Joog," he mumbled. "I can kill!" The giant's breath swept over Carter like a blast from a sulphur furnace. There would be no escape from that window!

Once more he dropped down into his cell. This time he commenced a slow circuit of the room, groping his way along the polished ersite slabs that formed the wall. The cobblestone floor was thick with debris. Once, Carter heard the sinister hiss of a Martian spider as he brushed its web.

How long he groped his way around the wall, there was no way of knowing. It seemed hours. Then, suddenly, the deathly silence was shattered by a woman's scream coming from somewhere in the building.

John Carter could feel his skin grow cold. Could that have been the voice of Dejah Thoris?

Once again John Carter leaped toward the faint light that marked the window ledge. Cautiously, he looked down. Joog lay on his back on the flagstones below, breathing as though he were asleep, his great chest rising five feet with every breath.

Quietly he started to edge his way along a ledge that ran from the window and disappeared into the shadow of an adjoining tower. If he could make that shadow without awakening Joog!

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He had almost gained his objective when Joog growled hoarsely.

He had opened one great eye. Now he reached up and, grabbing Carter by the leg, hurled him into the tower window again.

Wearily, the earthman crawled to the wall of his dark cell and there slumped down against it. That scream haunted his memory. He was tormented by the thought that Dejah Thoris might be in danger.

And where was Tars Tarkas? Pew Mogel must have captured him, too. Carter suddenly sprang to his feet.

One of the ersite slabs at his back had moved! He waited. Nothing came out. Cautiously, he approached the rock and shoved it with his foot. The slab moved slightly inward. Now Carter shoved the stone with all his tremendous strength. Inch by inch he moved it until finally there was enough room for him to squeeze his body through.

He was still in utter darkness, but his groping fingers revealed to him that he was in a corridor between two walls. Perhaps this was the way out of his prison!

Carefully he shoved the stone back into position, leaving no trace of his disappearance from the room. The corridor in which he found himself was so low that he was forced to crawl on hands and knees. The low corridor had the stench of age, as if it had been unused for a long time.

Gradually the tunnel sloped more and more downward. Many little side-passages branched off from the main tunnel. There was no light, no noise. Only a faint, pungent odor beginning to fill the air.

Now it was growing lighter. The earthman realized that he must be in the subterranean caverns of the palace. The dim light was caused by the phosphorescent radium glow that is used on all Mars for radiation.

The source of this faint light the earthman suddenly discovered. It was shining through a cleft in the wall ahead. Pushing aside another loose stone, John Carter crawled forth into a chamber. He drew in his breath sharply.

Facing him was a warrior with drawn sword, the point of which was almost touching the breast of the earthman!

JOHN CARTER leaped back with the speed of lightning, whipped out his own sword and struck at the other's weapon.

The arm of the red man fell from his body to the floor where it dissolved into dust. The ancient sword clattered on the cobblestones.

Carter could see now that the warrior had been leaning against

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the wall, balanced there precariously for ages, his sword arm extending in front of him just as it had stiffened long ago in death. The loss of the arm overbalanced the torso which toppled to the floor and there dissolved into a heap of ash-like dust!

In an adjoining chamber there were a score of women, beautiful girls, chained together by collars of gold around their necks. They sat at a table where they had been eating, and the food was still before them. They had been the prisoners, the slaves of the rulers of the long-dead city. The dry, motionless air combined with some gaseous secretion from the walls and dungeons had preserved their beauty through the ages.

The earthman had traversed some little distance down a musty corridor when he became aware of something scraping behind him. Whirling into a side corridor he looked back. Gleaming eyes were coming toward him. They followed him as he backed into the tunnel.

Now again came the scraping, repeated this time farther ahead in the tunnel. Other eyes shone ahead of him.

John Carter ran forward, his sword-point extended. The eyes ahead retreated, but those in back of him started to close in.

It was very dark now, but far ahead the earthman could see a faint gleam of light filtering into the tunnel.

He ran toward the light. Fighting the things where he could see them would be a lot easier than stumbling around in a dark corridor.

Carter entered the room and in the dim light came face to face with the creature whose eyes he had seen ahead of him in the tunnel. It was a species of the huge three-legged Martian rat!

Its yellow fangs were bared hideously in a vicious snarl, as it backed slowly away from Carter to the far end of the small room.

Now behind him came the other rat, and together the two beasts started to close in upon the earthman.

Carter smiled grimly as he gripped his sword.

"I am the proverbial cornered rat now," he muttered as he swung his blade at the nearest creature.

It ducked the blow and scurried toward him.

But the earthman's sword was ready. The charging rat lunged full upon the waiting sword-point.

The momentum of the beast carried Carter back five feet; but he still retained a hold on his sword, the point of which had plunged through the animal's single shoulder and pierced its wild heart.

When Carter had jerked free

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his sword and turned to meet his other antagonist an exclamation of dismay escaped his lips.

The room was half filled with rats!

The creatures had entered through another opening and had formed a circle around him, waiting to attack.

For half an hour, Carter battled furiously for his life in the lonely dungeon beneath the palace in the ancient city of Korvas.

The carcasses of the dead rats were piled high around him, but still they came and eventually they overpowered him by their very numbers.

John Carter went down by a terrific blow to his head from a snake-like tail.

He was half stunned, but he still clung tenaciously to his sword as he felt himself seized by the arms and dragged away into the darkness of an adjoining tunnel.

The City of Rats

JOHN CARTER recovered fully when he was dragged through a pool of muddy water. He heard the rats greedily drinking, saw their green eyes gleaming in the darkness. The smell of freshly dug earth reached his nostrils and he realized that he was in a burrow far under the subterranean vaults of the palace.

Several rats on either side of him had hold of his arms by their forepaws as they dragged him along. It was very uncomfortable. He wondered how much longer the journey would last.

Nor had he long to wait. The strange company finally came out into a huge underground cavern. Light from the outside filtered down through various openings in the ceiling above, its rays reflecting on thousands of gleaming stalactites of red sand stone. Massive stalagmites, huge sedimentary formations of grotesque shape, rose up from the floor of the cavern.

Among these formations on the floor were numerous dome-shaped mud huts.

As Carter was dragged by, he stared at a hut that several rats were constructing. The framework was composed of white sticks of various shapes plastered with mud from an underground stream bed. The white sticks were very irregular in length and size. One of the rats stopped work to gnaw at a stick. It looked like a bone.

As he was dragged closer, he saw that the stick was a human thigh bone!

The mud huts were studded with bones and skulls, upon some of which were still dangling hideously the vestiges of hair and skin. Carter noticed that the tops of all the skulls had been removed, neatly sliced off.

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The earthman was dragged to a clearing in the center of the cavern. Here, upon a mound of skulls, sat a rat half again as large as the others.

The baleful, pink eyes of the creature glared at Carter as he was dragged up on top of the mound.

The beasts released their hold upon the earthman and descended to the bottom of the mound, leaving Carter alone with the large rat.

The long whiskers of the monster were constantly twitching as the thing sniffed at the man. It had lost one ear in some battle long ago and the other was bright with scar-tissue.

Its little pink eyes surveyed Carter for a long time while it fondly caressed its long, hairless tail with its one claw-like paw.

This, evidently, was the King of the Rats.

"Lord of the Underworld," Carter thought, trying to hold his breath. The stench in the cavern was overwhelming.

Without taking his eyes from Carter's, the rat reached down and picked up a skull beside him and put it in front of Carter. This he repeated, picking up a skull from the other side and placing it beside the first. By repeating this, he eventually formed a little ring of topless heads in front of the earthman.

Now, very judiciously, he climbed inside the circle of skulls and picking one of them up tossed it to Carter. The earthman caught it and tossed it back at the king.

This seemed to annoy his royal highness. He made no effort to catch the skull as it flew past him and went bouncing down the mound.

Instead, the king leaped up and down inside the little circle of skulls, at the same time emitting angry squeals.

This was all very puzzling to the earthman. As he stood there, he became aware of two circles of rats forming at the base of the mound, each circle consisting of about a thousand animals. They began a weird dance, moving around the raised dais of bones counter-clockwise. The tail of each rat was gripped in the mouth of the following beast, thus forming a continuous chain.

There was no doubt that the earthman was in the center of a weird ritual. While he was ignorant of the exact nature of the ceremony, he had little doubt as to its final outcome. The countless barren skulls, the yellowed bones that filled the cavern were mute, horrible evidence of his final fate.

Where did the rats get all the bodies from which the skulls were obtained and why were the tops of those skulls missing?

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The City of Korvas, as every Martian schoolboy knew, had been deserted for a thousand years; yet many of the skulls and bones were recently picked clean of their flesh. Carter had seen no evidence in the city of any life other than the great white apes and the mysterious giant, and the rats themselves.

However, there had been the woman's scream that he had heard earlier. This thought accentuated his ever-present anxiety over Dejah Thoris's safety and whereabouts.

This delay was tormenting. As the circle of rats closed in about him, the earthman's eyes eagerly searched for some avenue of escape.

The rats circled slowly, watching their king who rose to his hind legs stamping his feet, thumping his tail. The mound of skulls echoed hollowly.

Faster danced the king and faster moved the circles of rats drawing ever closer to the mound.

The closer rats shot hungry glances at the earthman. Carter smiled grimly and gripped his sword more tightly. Strange that they should let him retain it.

More than one of the beasts would die before he was overcome, and the king would be the first to go. There was no doubt that he was to be sacrificed to furnish a gastronomic orgy.

Suddenly the king stopped his wild gyrations directly in front of Carter. The dancers halted instantly, watching, waiting.

A STRANGE growling squeal started deep in the king's throat and grew in volume to an ear-piercing shriek. The King of Rats stepped over the ring of skulls and advanced slowly toward Carter.

Once again the earthman glanced about seeking some means of escape from the mound. This time he looked up. The ceiling was at least fifty feet away. No earthborn Martian would even consider escaping in that direction.

But John Carter had been born on the planet Earth, and he had brought with him to Mars all the strength and agility of a trained athlete.

It was upon this, combined with the lesser gravity of Mars, that the earthman made his quick plan for the next moment.

Tensely he waited for his opportunity. The ceremony was nearly concluded. The king was baring his fangs not a foot from Carter's neck.

The earthman's hand tightened on his sword-hilt; then the blade streaked from its scabbard. There was a blur of motion and a sickening smack. The king's head flew into the air and then rolled away down the mound.

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The other beasts beneath were stunned into silence, but only momentarily. Now, squealing wildly, they swarmed up the mound intent on tearing the earthman to pieces.

John Carter crouched and with a mighty leap his earthly muscles sent him shooting fifty feet up into the air.

Desperately he clutched and held to a hanging stalagtite. Soon he was swinging on the hanging moss to the vast upper reaches of the cavern.

Once he looked down to see the rats milling and squealing in confusion beneath. One other fact he noted, also. Apparently there was only one means of entrance or exit into the dungeon that formed the rats' underground city, the same tunnel through which he had first been dragged.

Now, however, the earthman was intent upon finding some means of exit in the ceiling above.

At last he found a narrow opening; and plunging through a heavy curtain of moss, Carter swung into a cave.

There were several tunnels branching off into the darkness, most of them thickly hung with the sticky webs of the great Martian spider. They were evidently parts of a vast underground network of tunnels that had been fashioned long ages ago by the ancients who once inhabited Korvas.

Carter was ready with his blade for any encounter with man or beast that might come his way; and so he started off up the largest tunnel.

The perpetually burning radium light that had been set in the wall when the tunnel was constructed furnished sufficient illumination for the earthman to see his way quite clearly.

Carter halted before a massive door set into the end of a tunnel. It was inscribed with hieroglyphics unfamiliar to the earthman. The subdued drone of what sounded like many motors seemed to come from somewhere beyond the door.

He pushed open the unbarred door and halted just beyond, staring unbelievingly at the tremendous laboratory in which he found himself.

Great motors pumped oxygen through low pipes into rows of glass cages that lined the walls and filled the antiseptically white chamber from end to end. In the center of the laboratory were several operating tables with large searchlights focused down upon them from above.

But the contents of the glass cages immediately absorbed the earthman's attention.

Each cage contained a giant white ape, standing upright inside, apparently lifeless.

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The top of each hairy head was swathed in bandages. If these beasts were dead, why then the oxygen tubes running to their cages?

Carter moved across the room to examine the cases at closer range. Halfway to the farther wall he came upon a low, glassed dome that covered a huge pit set in the floor.

He gasped. The pit was filled with dead bodies, red warriors with the tops of their heads neatly sliced off!

Chamber of Horrors

FAR below, in the pit, John Carter could see forms moving in and about the bodies of the dead red men.

They were rats; and as he watched, the earthman could see them dragging bodies off into adjoining tunnels. These tunnels probably entered the main one which ran into the rats' underground city.

So this was where the beasts got the skulls and bones with which they constructed their odorous, underground dwellings!

Carter's eyes scanned the laboratory. He noted the operating tables, the encased instruments above, the anesthetics. Everything pointed to some grisly experiment, conducted by some insane scientist.

Within a glass case were many books. One ponderous volume was inscribed in gold letters: PEW MOGEL, HIS LIFE AND WONDERFUL WORKS.

The earthman frowned. What was the explanation? Why this well-equipped laboratory buried in an ancient lost city, a city apparently deserted except for apes, rats, and a giant man?

Why the cases about the wall containing the mute, motionless bodies of apes with bandaged heads? And the red men in the pit—why were their skulls cut in half, their brains removed?

From whence came the giant, the monstrous creature whose likeness had existed only in Barsoomian folklore?

One of the books in a case before Carter bore the name "Pew Mogel." What connection had Pew Mogel with all this and who was the man?

But more important, where was Dejah Thoris, the Princess of Helium?

John Carter reached for Pew Mogel's book. Suddenly the room fell silent. The generators that had been humming out their power, stopped.

"Touch not that book, John Carter," came the words echoing through the laboratory.

Carter's hand dropped to his sword. There was a moment's pause; then the hidden voice continued.

"Give yourself up, John Car-

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ter, or your princess dies." The words were apparently coming from a concealed loudspeaker somewhere in the room.

"Through the door to your right, earthman, the door to your right."

Carter immediately sensed a trap. He crossed to the door. Warily, he pushed it open with his foot.

Upon a gorgeous throne at the far end of a huge dome-shaped chamber sat a hideous, misshapen man. A tiny, bullet head squatted upon massive shoulders.

Everything about the creature seemed distorted. His torso was crooked, his arms were not equal in length; one foot was larger than the other.

The face in the diminutive head leered at John Carter. A thick tongue hung partly out over yellowed teeth.

The hulking body was encased in gorgeous trapping of platinum and diamonds. One claw-like hand stroked the bare head.

From head to foot there was apparently not a hair on his body!

At the man's feet crouched a great, four-armed shaggy brute —another white ape. Its little red eyes were fixed steadily upon the earthman as he stood at the far end of the chamber.

The man on the throne idly fingered the microphone with which he had summoned Carter to the room.

"I have trapped you at last, John Carter!" Beady, cocked eyes glared with hatred. "You cannot cope with the great brain of Pew Mogel!"

Pew Mogel turned to a television screen studded with dials and lights of various colors.

His face twisted into a smile. "You honor my humble city, John Carter. It is with the greatest interest I have watched your progress through the many chambers of the palace with my television machine." Pew Mogel patted the machine.

"This little invention of my good teacher, Ras Thavas," continued Pew Mogel, "which I acquired from him, has been an invaluable aid to me in learning of your intended search for my unworthy person. It was unfortunate that you should suspect the honorable intentions of my agent that afternoon in the Jeddak's chambers.

"Fortunately, however, he had already completed his mission; and through an extension upon this television set, concealed cleverly behind a mirror in the Jeddak's private throne room, I was able to see and hear the entire proceedings."

Pew Mogel laughed vacantly, his little unblinking eyes staring steadily at Carter who remained

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motionless at the other end of the room.

The earthman could see nothing in the chamber that indicated a trap. The walls and floor were all of grey, polished ersite slabs. Carter stood at one end of a long aisle leading to Pew Mogel's throne.

Slowly he advanced toward Pew Mogel, his hand grasping his sword, the muscles of his arm etched bands of steel.

Halfway down the aisle, the earthman halted. "Where is Dejah Thoris?" His words cut the air.

The microcephalic * head of Pew Mogel cocked to one side. Carter waited for him to speak.

IN spite of having the features of a man, Pew Mogel did not look quite human. There was something indescribably repulsive about him, the thin lips, the hollow cheeks, the close-set eyes.

Then Carter realized that those eyes were unblinking. There were no eyelids. The man's eyes could never close.

Pew Mogel spoke coldly. "I am greatly indebted to you for this visit. I was fortunate enough to be able to entertain your princess and your best friend; but I hardly dared to hope you would honor me, too."

Carter's face was expressionless. Slowly he repeated. "Where is Dejah Thoris?"

Pew Mogel leered mockingly.

The earthman advanced toward the throne. The white ape at Pew Mogel's feet growled, the hairs on its neck bristling upright as Pew Mogel flinched slightly.

Again the twisted smile passed over his face as he raised his hand toward John Carter and drawled.

"Have patience, John Carter, and I will show you your princess; but first, perhaps you will be interested in seeing the man who, last night, told you to meet him at the main bridge outside the city."

Pew Mogel hooked one of his fingers over a lever projecting from the golden arm of his throne and slipped it toward himself. A pillar to the left of his throne, half set in the wall, began to revolve slowly.

A giant green man appeared, chained to the pillar. His four mighty arms were strapped securely; and for Pew Mogel's additional safety, several steel chains were wrapped around his body and cinched with massive

* *A microcephalic head is one possessing a very small brain capacity. It is the opposite of megacephalic, which means a large brain capacity. Generally microcephalia is a sign of idiocy, although in the case of Pew Mogel, the condition did not mean idiocy, but extreme craftiness, and madness, which might indicate that, since Pew Mogel was an artificial, synthetic product of Ras Thavas, one of Mars most famous scientists, his microcephalia was either caused by a disease, or by inability of the brain to adapt itself to a foreign, ill-fitting cranial cavity. Pew Mogel's head was obviously too small for his body, or for his brain.—Ed.*

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padlocks. His neck and ankles were also secured with bands of steel, also padlocked.

"Tars Tarkas!" Carter exclaimed.

"Koar, John Carter," there was a grim smile on Tars Tarkas' face as he replied. "I see our friend here trapped us both the same way; but it took a giant fifteen times my size to hold me while they trussed me in these chains."

"The message you sent me last night—" In a flash, Carter realized the truth. Pew Mogel had faked the messages from Kantos Kan and Tars Tarkas, trapping them both in the city the night before.

"Yes, I sent you both identical messages," said Pew Mogel, "each message apparently from the other. The proper broadcasting length I ascertained from listening to the concealed microphone I had planted in the Jeddak's throne room. Clever?"

Pew Mogel's left eye suddenly popped out of its socket and dangled on his cheek. He took no notice of it, but continued to speak, glancing first at Carter and then at Tars Tarkas with the other eye.

"You have both met Joog," stated Pew Mogel. "One hundred and thirty feet tall, he is all muscle, a product of science, the result of my great brain.

"With my own hands I created him from living flesh, the greatest fighting monster that Barsoom has ever seen.

"I modeled him from the organs, tissues, and bones of ten thousand red men and white apes."

Pew Mogel, becoming aware of his left eye, quickly shoved it back into place.

Tars Tarkas laughed one of his rare laughs.

"Pew Mogel," he said, "You are falling apart. As you claim to have created your giant, so you yourself have been made.

"Unless I miss my guess, John Carter," continued Tars Tarkas, "this freak before us who calls himself a king has, himself, crawled out of a tissue vat!"

Pew Mogel's pallid countenance turned even paler as he leaped to his feet. He struck Tars Tarkas a vicious blow on the face.

"Silence, green man!" he shrieked.

Tars Tarkas only smiled at this insult, ignoring the pain. John Carter's face was a frozen mask. One more blow at his defenseless friend would have sent him at Pew Mogel's throat.

Better to bide his time, he knew, until he learned where Dejah Thoris was hidden.

Pew Mogel sank back upon his throne. The white ape, who had risen, once more squatted down

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to his post at his master's feet.

Presently Pew Mogel smiled again.

"So sorry," he drawled, "that I lost my temper. Sometimes I forget that my present appearance reveals the nature of my origin.

"You see, soon I shall have trained one of my apes in the intricate procedure of transferring my marvelous brain into a suitable, handsome body; then no one will guess that I am not like any other normal man on Barsoom."

John Carter smiled grimly at Pew Mogel's words.

"Then you *are* one of Ras Thavas' synthetic men?"

Pew Mogel

YES, I am a synthetic man," answered Pew Mogel slowly. "My brain was the greatest achievement of all the Master Mind's creations.

"For years I was a devoted pupil of Ras Thavas in his laboratories at Morbus. I learned all that the Master Mind could teach me of the secrets of creating living tissue. When I learned from him all that I thought necessary to pursue my plans, I left Morbus. With a hundred synthetic men I escaped over the Great Toonolian Marshes on the backs of malagors, the birds of transport.

"I brought with me all the intricate equipment that I could steal from his laboratories. The rest, I have fashioned here in this ancient deserted city where we finally landed."

John Carter was studying Pew Mogel intently.

"I was tired of being a slave," continued Pew Mogel. "I wanted to rule; and by Issus, I have ruled; and some day I shall rule all Barsoom!"

Pew Mogel's eyes gleamed.

"It was not long before red men gathered in our city, escaped and exiled criminals. Since their faces would only lead them to capture and execution in other civilized cities on Barsoom, I persuaded them to allow me to transfer their brains into the bodies of the stupid white apes that overran this city.

"I promised to later restore their brains into the bodies of other red men, provided they would help me in my conquests."

Carter recalled the apes with the bandaged heads in the adjoining laboratory, and the red men with their skulls sliced off in the chamber of rats. He began to understand a little; then he remembered Joog.

"But the giant?" asked John Carter. "Whence came he?"

Pew Mogel was silent for a minute; then he spoke.

"Joog I have built, piece by piece, during several years, from the bones, tissues and organs of

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a thousand red men and white apes who came voluntarily to me or whom I captured.

"Even his brain is the synthesis of the brains of ten thousand red men and white apes. Into Joog's veins I have pumped a serum that makes all tissues self-repairing.

"My giant is practically indestructable. No bullet or cannon-shot made can stop him!"

Pew Mogel smiled and stroked his hairless chin.

"Think how powerful my ape soldiers will be," he purred, "each one armed with the great strength of an ape. With their four arms they can hold twice as many weapons as ordinary men, and inside their skulls will function the cunning brains of human beings.

"With Joog and my army of white apes, I can go forth and become master of all Barsoom." Pew Mogel paused and then added, "—provided I acquire more iron for even greater weapons than I already have."

Now Pew Mogel had risen from his throne in his excitement.

"I preferred to conquer peacefully by first acquiring the Helium iron works as payment for Dejah Thoris's safe return. But the Jeddak and John Carter force me into other alternatives—

"However, I'll give you one more chance to settle peacefully," he said.

Pew Mogel's hand moved toward the right arm of his throne, as he pulled a duplicate lever. A beautiful woman swung into view.

It was Dejah Thoris!

At the sight of his princess chained to the other pillar before him, John Carter grew very pale. He sprang forward to free her.

His earthly muscles could have easily covered the distance in one leap; but halfway there in his spring, Dejah Thoris and Tars Tarkas saw the earthman sprawl in mid-air as though he had struck full force against some invisible barrier. Half-stunned, he crumpled to the floor.

Dejah Thoris gave a little cry. Tars Tarkas strained at his bonds. Slowly, the earthman rose to his feet, shaking his body like some majestic animal. With his sword he reached down and felt the barrier that stood between him and the throne.

Pew Mogel laughed harshly.

"You are trapped, John Carter. The invisible glass partition that you struck is another invention of the great Ras Thavas that I acquired. It is invulnerable.

"From there, you may watch the torture of your princess, unless she sees fit to sign a note to her father demanding the surrender of Helium to me."

The earthman looked at his princess not ten feet from him.

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Dejah Thoris held her head proudly high, which was answer enough to Pew Mogel's demands that she betray her people.

Pew Mogel saw, and angrily issued a command to the ape. The white brute rose and ambled over to Dejah Thoris. Grabbing her hair with one paw, he forced her head back until he could see her face. His hideous, grinning face was not two inches from hers.

"Demand Helium's surrender," hissed Pew Mogel, "and you shall have your freedom!"

"Never!" the word shot back at him.

Pew Mogel flung another command to the ape.

The creature planted his great, pendulous lips on those of the princess. Dejah Thoris went limp in his embrace, while Tars Tarkas surged vainly at the steel chains. The girl had fainted.

The earthman again hurled himself futilely against the barrier that he could not see.

"Fool," yelled Pew Mogel, "I gave you your chance to regain your princess by turning over to me the Helium iron works; but you and the Jeddak thought you could thwart me and regain Dejah Thoris without paying me the price I asked for her safe return. For that mistake, you all die."

Pew Mogel again reached over to the instrument board beside his throne. He began to turn several dials, and Carter heard a strange, droning noise that increased steadily in volume.

Suddenly the earthman turned and raced for the door through which he came.

But before he had covered fifteen feet, another barrier had closed down. Escape through the door was impossible.

There was a window over on the wall to his right. He leaped for it. He struck another glass barrier.

There was another window on the left side of the room. He had nearly reached it when he was met by another wall of invisible glass.

In a flash he became acutely conscious of his predicament. The walls were moving in upon him. He could see now that the glass barriers had moved out from cleverly concealed slits in the adjoining walls.

The two side barriers, however, were fastened to horizontal pistons in the ceiling. These pistons were moving together, bringing the glass walls toward each other, and would eventually crush the earthman between them.

Upon John Carter's finger was a jeweled ring. Set in the center of the ring was a large diamond.

Diamonds can cut glass!

Here was a new type of glass, but the chances were it was not

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as hard as the diamond on Carter's finger!

The earthman clenched his fist, pressed the diamond ring against the barrier in front of him and quickly made a large circular scratch in the glass surface of the barrier.

Then he crashed his body with all his strength against the area of glass enclosed by the scratch he had made.

The section broke out neatly at the blow, and the earthman found himself face to face with Pew Mogel.

Dejah Thoris had regained consciousness, a set, intent expression on her beautiful face. A grim smile had settled over Tars Tarkas's lips when he saw that his friend was no longer impeded by the invisible barriers.

Pew Mogel shrank back on his throne and gasped in a cracked voice.

"Seize him, Gore, seize him!" Little beads of sweat stood forth on his brow.

Gore, the white ape, released his hold on Dejah Thoris and, turning, saw the earthman advancing toward them. Gore snarled viciously, revealing jagged, mighty fangs. He crouched low, so that his four massive fists supported his weight on the floor. His little, beady, blood-shot eyes gleamed hatred, for Gore hated all men save Pew Mogel, his master.

The Flying Terror

AS Gore, the great white ape with a man's brain, crouched to meet John Carter, he was fully confident of overcoming his puny man opponent.

But to make assurance doubly sure, Gore drew the great blade at his side and rushed madly at his foe, hacking and cutting viciously.

The momentum of the brute's attack forced Carter backward a few steps as he deftly warded off the mighty blows.

But the earthman saw his chance. Quickly, surely, his blade streaked. There was a sudden twist and Gore's sword went hurtling across the room.

Gore, however, reacted with lightning speed. With his four huge hands he grasped the naked steel of the earthman's sword.

Violently he jerked the blade from Carter's grasp and, raising it overhead, snapped the strong steel in two as if it had been a splinter of wood.

Now, with a low growl, Gore closed in; and Carter crouched.

Suddenly the man leaped over the ape's head; but again with uncanny speed the monster shot out a hairy hand and grasped the earthman's ankle.

Gore held John Carter in his four hands, drawing the man closer and closer to the drooling jowls and gleaming fangs.

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Two people sat on a saddle on the Thoat's broad back.

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But with a surge of his mighty muscles, the earthman jerked free his arm and sent a terrific blow crashing full into Gore's face.

The ape recoiled, dropping John Carter, and staggered back toward the huge window on the right wall by Pew Mogel's throne.

Here the beast tottered; and the earthman, seeing his chance, once again leaped into the air, but this time flew feet foremost toward the ape.

At the moment of contact with the ape's chest, Carter extended his legs violently; and so, as his feet struck Gore, this force was added to the hurtling momentum of his body.

With a bellowing cry, Gore hurtled out through the window and his scream ended only when he landed with a sickening crunch in the courtyard far below.

Dejah Thoris and Tars Tarkas, chained to the pillars, had watched the short fight, fascinated by the earthman's sure, quick actions.

But when Carter did not succumb instantly to Gore's attack, Pew Mogel had grown frightened. He began jerking dials and switches; and then spoke swiftly into the little microphone beside him.

So now, as the earthman regained his feet and advanced slowly toward Pew Mogel, he did not see the black shadow that obscured the window behind him.

Only when Dejah Thoris screamed a warning did the earthman turn.

But he was too late!

A giant hand, fully three feet across, closed around his body. He was lifted from the floor and pulled out quickly through the window.

To Carter's ears came the hopeless cry of his princess mingled with the cruel, hollow laugh of Pew Mogel.

Carter did not need the added assurance of his eyes to know that he was being held in the grasp of Pew Mogel's synthetic giant. Joog's fetid breath blasting across his face was ample evidence.

Joog held Carter several feet from his face and contracted his features in the semblance of a grin, exposing his two great rows of cracked, stained teeth the size of sharp boulders.

"I, Joog. I, Joog," the monster finally managed. "I can kill! I can kill!"

Then he shook his victim until the man's teeth rattled.

But quite suddenly the giant was quiet, listening; then Carter became aware of muffled words coming, apparently, from Joog's ear.

Then John Carter realized that

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the command was coming from Pew Mogel, transmitted by short wave to a receiving device attached to one of Joog's ears.

"To the arena," repeated the voice. "Fasten him over the pit!"

The pit—what new form of devilish torture was this? Carter tried vaguely to ease the awful pressure that was crushing him.

But his arms were pinned to his sides by the giant's grasp. All the man could do was breathe laboriously and hope that Joog's great strides would soon bring them to his destination, whatever that might be.

The giant's tremendous pace, stepping over tall, ancient edifices or across wide, spacious plazas in single, mighty strides, soon brought them to a large, crowded amphitheatre on the outskirts of the city.

The amphitheatre apparently was fashioned from a natural crater. Row upon row of circular tiers had been carved within the inner wall of the crater, forming a series of levels upon which sat thousands of white apes.

In the center of the arena was a circular pit about fifty feet across. The pit contained what appeared to be water whose level was about fifteen feet from the top of the pit.

Three iron-barred cages hung suspended over the center of the pit by means of three heavy ropes, one attached to the top of each cage and running up through a pulley in the scaffolding built overhead and down to the edge of the pit where it was anchored.

Joog climbed partly over the edge of the coliseum and deposited Carter on the brink of the pit. Five great apes held him there while another ape lowered one of the cages to ground level.

Then he reached out with a hooked pole and swung the cage over the edge. He unlocked the cage door with a large key.

The keeper of the key was a short, heavy-set ape with a bull neck and exceedingly cruel, close-set eyes.

This brute now came up to Carter; and although the captive was being held by five other apes, he grabbed him cruelly by the hair and jerked Carter into the cage, at the same time kicking him viciously.

The cage door was slammed immediately, its padlock bolted closed. Now Carter's cage was pulled up over the pit and the rope end anchored to a davit at the edge.

It was not long before Joog returned with Dejah Thoris and Tars Tarkas. Their chains had been removed.

They were placed in the other two cages that hung over the pit next to that of John Carter.

"Oh, John Carter, my chief-

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tain!" cried Dejah Thoris, when she saw him in the cage next to hers. "Thank Issus you are still alive!" The little princess was crying softly.

John Carter reached through the bars and took her hand in his. He tried to speak reassuring words to her; but he knew, as did Tars Tarkas, who sat grim-faced in the other cage beside his, that Pew Mogel had ordained their deaths—but in what manner they would die, Carter, as yet, was uncertain.

"John Carter," spoke Tars Tarkas softly, "do you notice that all these thousands of apes gathered here in the arena apparently are paying no attention to us?"

"Yes, I noticed," replied the earthman, "They are all looking into the sky toward the city."

"Look," whispered Dejah Thoris. "It's the same thing upon which the ape rode when he captured me in the Helium Forest after shooting our thoat!"

There appeared in the sky, coming from the direction of the city, a great, lone bird upon whose back rode a single man.

The earthman's keen eyes squinted for an instant. "The bird is a malagor. Pew Mogel is riding it."

The bird and its rider circled directly overhead.

"Open the east gate," Pew Mogel commanded, his voice ringing out through a loudspeaker somewhere in the arena. The gates were thrown open and there began pouring out into the arena wave after wave of malagors exactly like the bird Pew Mogel rode.

As the malagors came out, column after column of apes were waiting at the entrance to vault onto the birds' backs. As each bird was mounted it rose into the air by telepathic command to join a constantly growing formation circling high overhead.

The mounting of the birds must have taken nearly two hours, so great were the number of Pew Mogel's apes and birds. Carter noticed that upon each ape's back was strapped a rifle and each bird itself carried a varying assortment of military equipment, including ammunition supplies, small cannon; and a sub-machine gun was carried by each flight platoon.

At last all was ready and Pew Mogel descended down over the cages of his three captives.

"You see, now, Pew Mogel's mighty army," he cried, "with which he will first conquer Helium and then all Barsoom." The man seemed very confident, for his crooked, misshapen body sat very straight upon his feathered mount.

"Before you are chewed to bits by the reptiles in the rising water below you," he said, "you will

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have a few moments to consider the fate that awaits Helium within the next forty-eight hours. I should have preferred to conquer peacefully; but you interfered. For that, you die, slowly and horribly."

Pew Mogel turned to the only ape that was left in the arena, the keeper of the key to the cages.

"Open the flood-gate!" was his single command before he rose up to lead his troops off toward the north.

Accompanying the weird, flying army in a sling carried by a hundred malagors rode Joog, the synthetic giant. A hollow, mirthless laugh peeled like thunder from the giant's throat as he was borne away into the sky.

The Reptile Pit

AS the last bird in Pew Mogel's fantastic army flapped out of sight behind the rim of the crater, John Carter turned to Tars Tarkas in the cage hanging beside him. He spoke softly, so Dejah Thoris wouldn't hear.

"Those creatures will make Helium a formidable enemy," he said. "Kantos Kan's splendid airfleet and infantry will be hard pressed against those thousands of apes equipped with human brains and modern armament, mounted upon fast birds of prey!"

"Kantos Kan and his airfleet are not even in Helium to protect the city," announced Tars Tarkas grimly. "I heard Pew Mogel bragging that he had sent Kantos Kan a false message, supposedly from you, urging that all Helium's fleet, as well as all ships of the searching party, be dispatched to your aid in the Great Toonolian Marshes."

"The Toonolian Marshes!" Carter gasped. "They're a thousand miles from Helium in the other direction."

A little scream from Dejah Thoris brought the men's attention to their own, immediate fate.

The ape beside the pit had pulled back a tall, metal lever. There was a gurgle of bubbles as air blasted up from the water in the pit below the three captives; and the water at the same time commenced to rise slowly.

The guard now unfastened the rope on each cage and lowered them so that the cage tops were a little below the surface of the ground inside the pit; then he refastened the ropes and stood for some time on the brink looking down at the helpless captives.

"The water rises slowly," he sneered thickly; "and so I shall have time now for a little sleep."

It was uncanny to hear words issuing from the mouth of the beast. They were barely articulate, for although the human brain in the ape's skull directed

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the words, the muscles of the larynx in the creature's throat were normally unequipped for the specialized task of human speech.

The guard lay down on the brink and stretched his massive, squat body.

"Your death cries will awaken me," he mumbled pleasantly, "when the water begins to envelop your feet and the reptiles start clawing at you through the bars of your cages." Whereupon, the ape rolled over and began snoring.

It was then that the three captives saw the slanting, evil eyes, the rows of flashing teeth, in a dozen hideous, reptilian faces staring greedily up at them from the rising waters below.

"Quite ingenious," remarked Tars Tarkas, his stoic face giving no more evidence of fear than did that of the earthman. "When the water partly submerges us, the reptiles will reach in with their claws and begin tearing us to pieces—if there is any life left in us, the rising water will drown it out when finally it submerges the tops of our cages."

"How horrible!" gasped Dejah Thoris.

John Carter's eyes were fastened on the brink of the pit. From his cage he could just see one of the guard's feet as the fellow lay asleep at the edge of the pit.

Cautioning the others to silence, Carter began swinging his body back and forth while he held fast to the bars of his cage. If he could just get his cage to swinging!—

The water had risen to about ten feet below their cages.

It seemed an eternity before he could get the heavy cage to even moving slightly. Nine feet to the water surface and those hideous, staring eyes and those gleaming teeth!

The cage was swinging now a little more, in rhythm to the earthman's constantly swaying body.

Eight feet, seven feet, six feet came the water. There were about ten reptiles in the water below the captives—ten pairs of narrow, evil eyes fixed steadily on their prey.

The cage was swinging faster.

Five feet, four feet. Tars Tarkas and Dejah Thoris could feel the hot breath of the reptiles!

Three, two feet! Only two more feet to go before the steadily swinging cage would cut into the water and slow down again to a standstill.

But the iron prison, swinging pendulum-like, would reach the brink on its next swing; so this time as the cage moved toward the brink on which lay the sleeping guard, John Carter knew he must act and act quickly!

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As the bars of the cage smacked against the cement wall of the pit, John Carter's arm shot out with the quickness of a striking snake.

His fingers closed in a grip of steel about the ankle of the sleeping guard.

An ear-piercing shriek rang out across the arena, echoing dismally in the hollow crater, as the ape felt himself jerked suddenly from his slumbers.

Back swung the cage. Carter regrasped the shrieking ape with his other hand through the bars as they swung out over the water. The reptiles had to lower their heads as the cage moved over them, so close had the water risen.

"Good work, John Carter," came Tars Tarkas's tense words as he reached out and grabbed hold of the ape with his four mighty hands. At the same time, Carter's cage splashed to a sudden stop. It had hit the water.

"Hold him, Tars Tarkas, while I pull the key off the scoundrel's neck—there, I've got it!"

The water was flowing over the bottom of the cages. One of the reptiles had reached a horny arm into Dejah Thoris's cage and was attempting to snag her body with is sharp, hooked claws.

Tars Tarkas flung the ape's body with all the force of his giant thews straight at the reptile beside the girl's cage.

There was a thump, a splash, and a gurgling, sickening shriek as the ape hit the reptile's back, flopped into the water, and was piled upon by the other creatures.

"Quickly, John Carter," cried Dejah Thoris. "Save yourself while they are fighting over the ape's body."

"Yes," echoed Tars Tarkas, "unlock your cage and get out while there is still time."

A HALF-SMILE lifted the corner of Carter's mouth as he swung open his prison door and leaped to the top of Dejah Thoris's cage.

"I'd sooner stay and die with you both," the earthman said, "than desert you now."

Carter soon had the princess' prison door unlocked; but as he reached down to lift the girl up, a reptile darted forward into the cage with the princess.

In a quick second, Carter was inside the girl's cage, already knee-deep in water; and he had hurled himself onto the back of the reptile. A steely arm was clamped tightly around the creature's neck. The head was jerked back just in time, for the heavy jaws snapped closed only an inch from the girl's body.

"Climb out, Dejah Thoris—to the top of the cage! ordered Carter. When the girl had obeyed, Carter dragged the flopping,

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helpless reptile to the cage door, as other slimy monsters started in. Using its body as a shield before him, the earthman forced his way to the door.

In an instant he had released his hold and vaulted up on top of the cage with the girl.

A moment later he had unlocked Tars Tarkas's cage door. After the green man had swung up beside them without mishap, the three climbed the ropes to the scaffolding above and then lowered themselves down to the ground beside the pit.

"Thank Issus," breathed the girl as they sat down to regain their breaths. Her beautiful head was cushioned upon Carter's shoulder, and he stroked her lovely black hair reassuringly.

Presently the earthman rose to his feet. Tars Tarkas had motioned him across the arena.

"There are some malagors left inside here," Tars Tarkas called from the entrance to the cavern inside the crater from where had come Pew Mogel's mounts.

"Good!" exclaimed Carter. "There may be a chance yet to reach and help Helium."

A moment later they had caught two of the birds and had risen over the ancient city of Korvas.

They spotted their planes on the outskirts of the city where they had left them the night they were tricked into being captured by Pew Mogel.

But to their disappointment, the controls had been destroyed irreparably, so that they were forced to continue their journey on the backs of the malagors.

However, the malagors proved speedy mounts. By noon the next day the trio had reached the City of Thark, inhabited by a hundred thousand green warriors over whom Tars Tarkas was the ruler.

Gathering the warriors together in the market-place, Tars Tarkas and John Carter explained the peril that confronted Helium and asked for their support in marching to their allies' aid.

As one man, the mighty warriors shouted their approval. The next day dawned upon a long caravan of thoat-mounted soldiers streaming out from the city gates toward Helium determined to save it, if possible.

A messenger was sent on a malagor to the Toonolian Marshes in an attempt to locate Kantos Kan and urge him to return home with his fleet to aid in the defense of Helium.

Tars Tarkas had abandoned his malagor to this messenger, in favor of a thoat upon which he rode at the head of his warriors. Directly above him, mounted on the other malagor, rode Dejah Thoris and John Carter.

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Attack on Helium

JOHN CARTER and Dejah Thoris, mounted upon their malagor, were scouting far ahead of the main column of advancing warriors when they first came into sight of the besieged City of Helium.

It was bright moonlight. The princess voiced a little, disappointed cry when she looked out across the spacious valley toward Helium. Her grandfather's city was completely surrounded by the besieging troops of Pew Mogel.

"My poor city!" The girl was crying softly, for in the bright moonlight below could be easily discerned the terrific gap in the ramparts and the many crushed and shattered buildings of the beautiful metropolis.

John Carter telepathically commanded the malagor to land upon a high peak in the mountains overlooking the Valley of Helium.

"Listen," cautioned John Carter. Pew Mogel's light entrenched cannon and small arms were commencing to open fire again by moonlight. "They are getting ready for an air attack."

Suddenly, from behind the low foothills between the valley and the towering peaks, there rose the flying arm of Pew Mogel.

"They are closing in from all sides," Dejah Thoris cried.

The great winged creatures and their formidable ape riders were swooping down relentlessly upon the city. Only a few of Helium's airships rose to give battle.

"Kantos Kan must have taken nearly all Helium's fleet with him," the earthman remarked. "I am surprised Helium has withstood the attack as long as this."

"You should know my people by now, John Carter," replied the princess.

"The infantry and anti-aircraft fire entrenched in Helium are doing well," Carter replied. "See those birds plummet to the ground."

"They can't hold out much longer, though," the girl replied. "Those apes are dropping bombs squarely into the city, as they swoop over, wave after wave of them—oh, John Carter, what can we do?"

John Carter's old fighting smile, usually present at times of personal danger, had given way to a stern, grave expression.

He saw below him the oldest and most powerful city on Mars being conquered by Pew Mogel's forces. Armed with Helium's vast resources, the synthetic man would go forth and conquer all civilized nations on Mars.

Fifty thousand years of Martian learning and culture wrecked by a power-mad maniac—himself

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the synthetic product of civilized man!

"Is there nothing we can do to stop him, John Carter?" came the girl's repeated question.

"Very little, I'm afraid, my princess," he replied sadly. "All we can do is station Tars Tarkas's green warriors at advantageous points in preparation for a counter-attack and trust to fate that our messenger reached Kantos Kan in time that he may return and aid us.

"Without supporting aircraft, our green warriors, heroic fighters that they are, can do little against Pew Mogel's superior numbers in the air."

When John Carter and Dejah Thoris returned to Tars Tarkas, they reported what they had seen.

The great Thark agreed that his warriors could avail but little in a direct attack against Pew Mogel's air force. It was decided that half their troops be concentrated at one point and at dawn attempt to rush through into the City.

The remaining half of the warriors would scatter into the mountains in smaller groups and engage the enemy in guerrilla warfare.

Thus they hoped to forestall the fate of Helium until Kantos Kan returned with his fleet of speedy air fighters.

"Helium's fleet of trim, metal fighting craft will furnish Pew Mogel's feathered bird brigade a worthy enemy," remarked Tars Tarkas.

"Provided, of course," added Carter, "Kantos Kan's fleet reaches Helium before Pew Mogel has entrenched himself in the City and returned his own anti-aircraft guns upon them."

All that night in the mountains, under cover of semi-darkness, John Carter and Tars Tarkas reorganized and restationed their troops. By dawn all was ready.

John Carter and Tars Tarkas would lead the advance half of the Tharks in a wild rush toward the gates of Helium; the other half would remain behind, covering their comrades' assault with long-range rifles.

Much against the earthman's will, Dejah Thoris insisted she would ride into the City beside him upon their malagor.

It was just commencing to grow brighter.

"Prepare to charge," Carter ordered. Tars Tarkas passed the word down by his orderly to his unit commanders.

"Prepare to charge! Prepare to charge!" echoed down and across the battalions of magnificent, four-armed, green fighters astride their eight-legged, massive, restless thoats.

The minutes dragged by as the

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troop lines swung around. Steel swords were drawn from scabbards. Hammers, on short, deadly ray-pistols, clicked back as they cocked over saddle pommels.

John Carter looked around at the girl sitting so straight and steady behind him.

"It's easy to be brave," she replied, "when I'm so close to the greatest warrior on Mars."

"Charge!" came Carter's terse, sudden order.

DOWN the mountain and across the plain toward Helium streaked the savage horde of Tharks. Out ahead raced Tars Tarkas, his sword held high.

Far ahead and above, on speedy wings, streaked the malagor carrying John Carter and the Princess of Helium.

"John Carter, thank Issus!" Dejah Thoris cried in relief, and pointed toward the far mountain skyline.

"The Helium Fleet has returned," shouted John Carter. "Our messenger reached Kantos Kan in time!" Over the mountains, with flying banners streaming, sailed the mighty Helium Fleet.

There was a moment's silence in the entrenched guns of the enemy. They had seen the charging Tharks and the Helium Fleet simultaneously.

A great cry of triumph rose from the ranks of the charging warriors at sight of the Helium Fleet streaking to their aid.

"Listen," cried Dejah Thoris to Carter, "the bells of Helium are tolling our victory song!" Then it seemed as though all of Pew Mogel's guns broke loose at once; and from behind the protecting hills rose his flying legions of winged malagors. Upon their backs rode the white apes with men's brains.

Down upon the legions of Tharks came wave after wave of Pew Mogel's feathered squadrons. In true blitzkrieg fashion, the birds would swoop down just out of sword's reach over the green warriors. As each bird pulled out of its dive, the ape on its back would empty its death-dealing atom-gun into the mass of warriors beneath.

The carnage was terrific. Only after Tars Tarkas and John Carter had led their warriors into the first lines of entrenched apes did the Tharks find an enemy with whom they could fight effectively.

Here, the four-armed green soldiers of Thark fought gloriously against the great white apes of Pew Mogel's ghastly legions.

But never for a second did the horrible death-diving squadrons cease their attacks from above. Like angry hornets, the thousands dove, killed, climbed, dove,

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and killed again—always killing.

John Carter masterfully controlled his frightened bird while he issued orders and directed attacks from his vantage point immediately above the center of battle.

Bravely, efficiently, the Princess of Helium protected her chieftain against countless side and rear attacks from the air. The barrel of her radium pistol was red-hot with constant firing; and many were the charging birds and shrieking apes she sent catapulting into the melee below.

Suddenly a hoarse shout rose again from Pew Mogel's legions on ground and in air.

"What is it, my chieftain?" cried the girl. "Why are the enemy shouting in triumph?"

John Carter looked toward the advancing ships now over the mountains only a half mile away; then his blood ran cold.

"The giant—Joog, the giant!"

The creature had risen up from behind the shelter of a low hill, as the ships approached above him. The giant grasped a huge tree trunk in his mighty hand.

Even from where they were, John Carter could discern the head of a man sitting in an armor-enclosed, steel howdah strapped to the top of Joog's helmet.

From the giant's lips there suddenly issued a thunderous, shrieking roar that echoed in the mountains and across the plain.

Then he clambered swiftly to the top of a small hill. Before the astonished Heliumites could swerve their speeding craft, the giant struck out mightily with the great tree trunk.

The great, synthetic muscles of Pew Mogel's giant swung the huge weapon full into the advancing craft.

The vanguard of twenty ships, the pride of Helium's airfleet met the blow head-on—went smashing and shattering against the mountainside, carrying their crews to swift, crushing death!

Two Thousand Parachutes

KANTOS KAN'S flagship narrowly escaped annihilation at the first blow of the giant. The creature's club only missed the leading ship by a few feet.

From their position on the malagor, John Carter and Dejah Thoris could see many of the airships turning back toward the mountains. Others, however, were not so fortunate.

Caught in the wild rush of air resulting from the giant's swinging club, the craft pitched and tossed crazily out of control.

Again and again the huge tree trunk split through the air as the giant swung blow after blow at the helpless ships.

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"Kantos Kan is re-forming his fleet," John Carter shouted above the roar of battle as the fighting on the ground was once more resumed with increased zeal.

"The ships are returning again," cried the princess, "toward that awful creature!"

"They are spreading out in the air," the earthman replied. "Kantos Kan is trying to surround the giant!

"Look, they are giving him some of Pew Mogel's own medicine!"

Helium's vast fleet of airships was darting in from all sides. Others came zooming down from above. As they approached with range of their massive target, the gunners would pour out a veritable hail of bullets and rays into the giant's body.

Dejah Thoris sighed in relief.

"He can't stand that much longer!" she said.

John Carter, however, shook his head sadly as the giant began to strike down the planes with renewed fury.

"I'm afraid it's useless. Not only those bullets but the ray-guns as well are having no effect upon the creature. His body has been imbued with a serum that Ras Thavas discovered. The stuff spreads throughout the tissue cells and makes them grow immediately with unbelievable speed to replace all wounded or destroyed flesh."

"You mean," Dejah Thoris asked, horror-stricken, "the awful monster might never be destroyed?"

"It is probable that he will live and grow forever," replied the earthman, "unless something drastic is done to destroy him—"

A sudden fire of determination flared in the earthman's steel grey eyes.

"There may be a way yet to stop him, my princess, and save our people—"

A weird, bold plan had formulated itself in John Carter's mind. He was accustomed to acting quickly on sudden impulse. Now he ordered his malagor down close over Tars Tarkas's head.

Although he knew the battle was hopeless, the green man was fighting furiously on his great thoat.

"Call your men back to the mountains," shouted Carter to his old friend. "Hide out there and reorganize—wait for my return!"

The next half hour found John Carter and the girl beside Kantos Kan's flagship. The great Helium Fleet had once more retreated over the mountains to take stock of its losses and re-form for a new attack.

Every ship's captain must have known the futility of further battle against this indomitable element; yet they were all willing

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to fight to the last for their nation and for their princess, who had so recently been rescued.

After the earthman and the girl boarded the flagship, they freed the great malagor that had so faithfully served them. Kantos Kan joyously greeted the princess on bended knee and then welcomed his old friend.

"To know you two are safe again is a pleasure that even outweighs the great sadness of seeing our City of Helium fall into the enemy's hands," stated Kantos Kan sincerely.

"We have not lost yet, Kantos Kan," said the earthman. "I have a plan that might save us—I'll need ten of your largest planes manned by only a minimum crew."

"I'll wire orders for them to break formation and assemble beside the flagship immediately," replied Kantos Kan, turning to an orderly.

"Just a minute," added Carter. "I'll want each plane equipped with *two hundred parachutes!*"

"Two hundred parachutes?" echoed the orderly. "Yes, sir!"

Almost immediately there were ten large aircraft, empty troop ships, drifting in single file formation beside Kantos Kan's flagship. Each had a minimum crew of ten men and two hundred parachutes, two thousand parachutes in all!

Just before he boarded the leading ship, John Carter spoke to Kantos Kan.

"Keep your fleet intact," he said, "until I return. Stay near Helium and protect the city as best you can. I'll be back by dawn."

"But that monster," groaned Kantos Kan. "Look at him—we must do something to save Helium."

The enormous creature, standing one hundred and thirty feet tall, dressed in his ill-fitting, baggy tunic, was tossing boulders and bombs into Helium, his every action dictated through short wave by Pew Mogel, who sat in the armored howdah atop the giant's head.

John Carter laid his hand on Kantos Kan's shoulder.

"Don't waste further ship and men uselessly in fighting the creature," he warned; "and trust me, my friend. Do as I say—at least until dawn!"

John Carter took Dejah Thoris's hand in his and kissed it.

"Goodbye, my chieftain," she whispered, tears filling her eyes.

"You'll be safer here with Kantos Kan, Dejah Thoris," spoke the earthman; and then, "Goodbye, my princess," he called and vaulted lightly over the craft's rail to the deck of the troop ship alongside. It pained him to leave Dejah Thoris; yet he knew she was in safe hands.

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Ten minutes later, Dejah Thoris and Kantos Kan watched the ten speedy craft disappear into the distant haze.

When John Carter had gone, Kantos Kan unfurled Dejah Thoris's personal colors beside the nation's flag; so that all Helium would know that their princess had been found safe and the people be heartened.

During his absence, Kantos Kan and Tars Tarkas followed the earthman's orders, refraining from throwing away their forces in hopeless battle. As a result, Pew Mogel's fighters had moved closer and closer to Helium; while Pew Mogel himself was even now preparing Joog to lead the final assault upon the fortressed city.

Exactly twenty-four hours later, John Carter's ten ships returned.

As he approached Helium, the earthman took in the situation at a glance. He had feared that he would be too late, for his secret mission had occupied more precious time than he had anticipated.

But now he sighed with relief. There was still time to put into execution his bold plan, upon which rested the fate of a nation.

A Daring Plan

FEARING that Pew Mogel might somehow intercept any shortwave signal to Kantos Kan, John Carter sought out the flagship and hove to alongside it.

The troop ships that had accompanied him on his secret mission were strung out behind their leader.

Their captains awaited the next orders of this remarkable man from another world. In the last twenty-four hours they had seen John Carter accomplish a task that no Martian would have even dreamed of attempting.

The next few hours would determine the success or failure of a plan so fantastic that the earthman himself had half-smiled at its contemplation.

Even his old friend, Kantos Kan shook his head sadly when John Carter explained his intentions a few minutes later in the cabin of the flagship.

"I'm afraid it's no use, John Carter," he said. "Even though your plan is most ingeniously conceived, it will avail naught against that horrible monstrosity.

"Helium is doomed, and although we shall all fight until the last to save her, it can do no good."

As he talked, Kantos Kan was looking down at Helium far below. Joog the giant could be seen on the plain hurling great boulders into the city.

Why Pew Mogel had not ordered the giant into the city itself by this time, Carter could

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not understand—unless it was because Pew Mogel actually enjoyed watching the destructive effect of the boulders as they crashed into the buildings of Helium.

Actually, Joog, however frightful in appearance, could best serve his master's purpose by biding his time, for he was doing more damage at present than he could possibly accomplish within the city itself.

But it was only a matter of time before Pew Mogel would order a general attack upon the city.

Then his entrenched forces would dash in, scaling the walls and crashing the gates. Overhead would swoop the supporting apes on their speedy mounts, bringing death and destruction from the air.

And finally Joog would come, adding the final coup to Pew Mogel's victory.

The horrible carnage that would then fall upon his people made Kantos Kan shudder.

"There is no time to lose, Kantos Kan," spoke the earthman. "I must have your assurance that you will see that my orders are followed to the letter."

Kantos Kan looked at the earthman for some time before he spoke.

"You have my word, John Carter," he said, "even though I know it will mean your death, for no man, not even you, can accomplish what you plan to do!"

"Good!" cried the earthman. "I shall leave immediately; and when you see the giant raise and lower his arm three times, that will be your signal to carry out my orders!"

Just before he left the flagship, John Carter knocked at Dejah Thoris's cabin door.

"Come," he heard her reply from within. As he threw open the door, he saw Dejah Thoris seated at a table. She had just flicked off the visiscreen upon which she had caught the vision of Kantos Kan. The girl rose, tears filling her eyes.

"Do not leave again, John Carter," she pleaded. "Kantos Kan has just told me of your rash plan—it cannot possibly succeed, and you will only be sacrificing yourself uselessly. Stay with me, my chieftain, and we shall die together!"

John Carter strode across the room and took his princess in his arms—perhaps for the last time. She pillowed her head on his broad chest and cried softly. He held her close for a brief moment before he spoke.

"Upon Mars," he said, "I have found a free and kindly people whose civilization I have learned to cherish. Their princess is the woman I love.

"She and her people to whom

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she belongs are in grave danger. While there is even a slight chance for me to save you and Helium from the terrible catastrophe that threatens all Mars, I must act."

Dejah Thoris straightened a little at his words and smiled bravely as she looked up at John Carter.

"I'm sorry, my chieftain," she whispered. "For a minute, my love for you made me forget that I belong also to my people. If there is any chance of saving them, I would be horribly selfish to detain you; so go now and remember, if you die the heart of Dejah Thoris dies with you!

A moment later John Carter was seated behind the controls of the fastest, one-man airship in the entire Helium Navy.

He waved farewell to the two forlorn figures who stood at the rail of the flagship.

Then he opened wide the throttle of the quiet, radium engine. He could feel the little craft shudder for an instant as it gained speed. The earthman pointed its nose upward and swiftly rose far above the battleground.

Then he nosed over and dove down. The wind whistled shrilly off the craft's trim lines as its increased momentum sped it, comet-like, downward—straight toward the giant!

The Fate of a Nation

NEITHER Pew Mogel nor the giant Joog had yet seen the lone craft diving toward them from overhead. Pew Mogel, seated inside the armored howdah that was attached to Joog's enormous helmet, was issuing attack orders to his troops by short-wave.

A strip of glass, about three feet wide, completely encircled the howdah, enabling Pew Mogel to obtain complete, unrestricted vision of his fighting forces below.

Perhaps if Pew Mogel had looked up through the circular glass skylight in the dome of his steel shelter, he would have seen the earthman's speedy little craft streaking down on him from above.

John Carter was banking his life, that of the woman he loved and the survival of Helium upon the hope that Pew Mogel would *not* look up.

John Carter was driving his little craft with bullet speed—straight toward that circular opening on top of Pew Mogel's sanctuary.

Joog was standing still now, shoulders hunched forward. Pew Mogel had ordered him to be quiet while he completed his last-minute command to his troops.

The giant was on the plain between the mountains and the

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city. Not until he was five hundred feet above the little round window did Carter pull back on the throttle.

He had gained his great height to avoid discovery by Pew Mogel. His speed was for the same purpose.

Now, if he were to come out alive himself, he must slow down his hurtling craft. That impact must occur at exactly the right speed.

If he made the crash too fast, he might succeed only in killing himself, with no assurance that Pew Mogel had died with him.

On the other hand, if the speed of his ship were too slow it would never crash through the tough glass that covered the opening. In that case, his crippled plane would bounce harmlessly off the howdah and carry Carter to his death on the battlefield below.

One hundred feet over the window!

He shut off the motor, a quick glance at the speedometer—too fast for the impact!

His hands flew over the instrument panel. He jerked back on three levers. Three little parachutes whipped out behind the craft. There was a tug on the plane as its speed slowed down.

Then the ship's nose crashed against the little window!

There was a crunch of steel, a splinter of wood, as the ship's nose collapsed; then a clatter of glass that ended in a dull, trembling thud as the craft bore through the window and lodged part way into the floor of Pew Mogel's compartment.

The tail of the craft was protruding out of the top of the howdah, but the craft's door was inside the compartment.

John Carter sprang from his ship, his blade gleaming in his hand.

Pew Mogel was still spinning around crazily in his revolving chair from the tremendous impact. His earphones and attached microphone, with which he had directed Joog's actions as well as his troop formations, had been knocked off his head and lay on the floor at his feet.

When his foolish spin finally stopped Pew Mogel remained seated. He stared incredulously at the earthman.

His small, lidless eyes bulged. He opened his crooked mouth several times to speak. Now his twisted fingers worked spasmodically.

"Draw your sword, Pew Mogel!" spoke the earthman so low that Pew Mogel could hardly hear the words.

The synthetic man made no move to obey.

"You're dead!" he finally croaked. It was like the man were trying to convince himself that what he saw confronting

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him with naked sword was only an ill-begotten hallucination. So hard, in fact, did Pew Mogel continue to stare that his left eye behaved as Carter had seen it do once before in Korvas when the creature was excited.

It popped out of its socket and hung down on his cheek.

"Quickly, Pew Mogel, draw your weapon—I have no time to waste!"

Carter could feel the giant below him growing restless, shifting uneasily on his enormous feet. Apparently he did not yet suspect the change of masters in the howdah strapped to his helmet; yet he had jumped perceptibly when Carter's craft had torn into his master's sanctuary.

Carter reached down and picked up the microphone on the floor.

"Raise your arm," he shouted into the mouthpiece.

There was a pause; then the giant raised his right arm high over his head.

"Lower arm," Carter commanded again. The giant obeyed.

Twice more, Carter gave the same command and the giant obeyed each time. The earthman half smiled. He knew Kantos Kan had seen the signal and would follow the orders he had given him earlier.

Now Pew Mogel's hand suddenly shot down to his side. It started up with a radium gun.

There was a blinding flash as he pulled the trigger; then the gun flew miraculously from his hand.

Carter had leaped to one side. His sword had crashed against the weapon knocking it from Pew Mogel's grasp.

Now the man was forced to draw his sword.

There, on top of the giant's head, fighting furiously with a synthetic man of Mars, John Carter found himself in one of the weirdest predicaments of his adventurous life.

Pew Mogel was no mean swordman. In fact, so furious was his first attack that he had the earthman backing around the room hard-pressed to parry the swift torrent of blows that were aimed indescriminately at every inch of his body.

It was a ghastly sensation, fighting with a man whose eye hung down the side of his face. Pew Mogel had forgotten that it had popped out. The synthetic man could see equally well with either eye.

Now Pew Mogel had worked the earthman over to the window. For an instant he glanced out.

An exclamation of surprise escaped his lips.

Panic

JOHN CARTER'S eyes followed those of Pew Mogel.

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What he saw made him smile, renewed hope surging over him.

"Look, Pew Mogel! Your flying army is disbanding!"

The thousands of malagors that had littered the sky with their hairy riders were croaking hoarsely as they scattered in all directions. The apes astride their backs were unable to control their wild fright. The birds were pitching off their riders in wholesale lots, as their great wings flapped furiously to escape that which had suddenly appeared in the sky among them.

The cause of their wild flight was immediately apparent.

The air was filled with parachutes!—and dangling from each falling parachute was a three-legged Martian rat—every Martian bird's hereditary foe!

In the quick glance that he took, Carter could see the creatures tumbling out of the troop ships into which he had loaded them during his absence of the last twenty-four hours.

His orders were being followed implicitly.

The rats would soon be landing among Pew Mogel's entrenched troops.

Now, however, John Carter's attention returned to his own immediate peril.

Pew Mogel swung viciously at the earthman. The blade nicked his shoulder, the blood flowed down his bronzed arm.

Carter stole another glance down. Those rats would need support when they landed in the trenches.

Good! Tars Tarkas's green warriors were again racing out of the hills, unhindered now by scathing fire from an enemy above.

True, the rats when they landed would attack anything in their path; but the green Tharks were mounted on fleet thoats—the apes had no mounts. No malagor would stay within sight of its most hated enemy.

Pew Mogel was backing up now once more near the window. Out of the corner of his eye, Carter caught sight of Kantos Kan's air fleet zooming down toward Pew Mogel's ape legions far below.

Pew Mogel suddenly reached down with his free hand.

His fingers clutched the microphone that Carter had dropped when Pew Mogel had first rushed at him.

Now the creature held it to his lips and before the earthman could prevent he shouted into it.

"Joog!" he cried. "Kill! Kill! Kill!

The next second, John Carter's blade had severed Pew Mogel's head from his shoulders.

The earthman dived for the microphone as it fell from the creature's hands; but he was met

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by Pew Mogel's headless body as it lunged blindly around the room still wielding its gleaming weapon.

Pew Mogel's head rolled about the floor, shrieking wildly as Joog charged forward to obey his master's last command to kill!

Joog's head jerked back and forth with each enormous stride. John Carter was hurled roughly about the narrow comparment.

Pew Mogel's headless body floundered across the floor, still striking out madly with the sword in its hand.

"You can't kill me. You can't kill me," shrieked Pew Mogel's head, as it bounced about. "I am Ras Thavas' synthetic man. I never die. I never die!"

The narrow entrance door to the howdah had flopped open as some flying object hit against its bolt.

Pew Mogel's body walked vacantly through the opening and went hurtling down to the ground far below.

Pew Mogel's head saw and shrieked in dismay; then Carter managed to grab it by the ear and hurl the head out after the body.

He could hear the thing shrieking all the way down; then its cries ceased suddenly.

Joog was now fighting furiously with the weapon he had just uprooted.

"I kill! I kill!" he bellowed as he smacked the huge club against the Helium planes as they drove down over the trenches.

Although the howdah was rocking violently, Carter clung to the window. He could see the rats landing now by the scores, hurling themselves viciously at the apes in the trenches.

And Tars Tarkas's green warriors were there now, also. They were fighting gloriously beside their great, four-armed leader.

But Joog's mighty club was mowing down a hundred fighters above the ground.

Joog had to be stopped somehow!

John Carter dove for the microphone that was sliding around the floor. He missed it, dove again. This time his fingers held it.

"Joog—stop! Stop!" Carter shouted into the microphone. Panting and growling, the great creature ceased his ruthless slaughter. He stood hunched over, the sullen, glaring hatred slowly dying away in his eyes, as the battle continued to rage at his feet.

The apes were now completely disbanded. They broke over the trenches and ran toward the mountains, pursued by the vicious, snarling rats and the green warriors of Tars Tarkas.

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John Carter could see Kantos Kan's flagship hovering near Joog's head.

Fearing that Joog might aim an irritated blow at the craft with its precious cargo, the earthman signalled the ship to remain aloof.

Then his command once again rang into the microphone.

"Joog, lie down. Lie down!"

Like some tired beast of prey, Joog settled down on the ground amid the bodies of those he had killed.

John Carter leaped out of the howdah onto the ground. He still retained hold of the microphone that was tuned to the shortwave receiving set in Joog's ear.

"Joog!" shouted Carter again. "Go to Korvas. Go to Korvas."

The monster glared at the earthman, not ten feet from his face, and snarled.

Adventure's End

ONCE again the earthman repeated his command to Joog the giant. Now the snarl faded from his lips and from the brute's chest came a sound not unlike a sigh as he rose to his feet once again.

Turning slowly, Joog ambled off across the plain toward Korvas.

It was not until ten minutes later after the Heliumite soldiers had stormed from their city and surrounded the earthman and their princess that John Carter, holding Dejah Thoris tightly in his arms, saw Joog's head disappear over the mountains in the distance.

"Why did you let him go, John Carter?" asked Tars Tarkas, as he wiped the blood from his blade on the hide of his sweating thoat.

"Yes, why," repeated Kantos Kan, "when you had him in your power?"

John Carter turned and surveyed the battlefield.

"All the death and destruction that has been caused here today was due not to Joog but to Pew Mogel," replied John Carter.

"Joog is harmless, now that his evil master is dead. Why add his death to all those others, even if we could have killed him—which I doubt?"

Kantos Kan was watching the rats disappear into the far mountains in pursuit of the great, lumbering apes.

"Tell me, John Carter," finally he said, a queer expression on his face, "how did you manage to capture those vicious rats, load them into those troop ships and even strap parachutes on them?"

John Carter smiled. "It was really simple," he said. "I had noticed in Korvas, when I was a prisoner in their underground city, that there was only one means of entrance to the cavern

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in which the rats live—a single tunnel that continued back for some distance before it branched, although there were openings in the ceiling far above; but they were out of reach.

"I led my men down into that tunnel and we built a huge fire with debris from the ground above. The natural draft carried the smoke into the cavern.

"The place became so filled with smoke that the rats passed out by the scores from lack of oxygen, for they couldn't get by the fire in the tunnel—their only means of escape. Later, we simply went in and dragged out as many as we needed to load into our troop ships."

"But the parachutes!" exclaimed Kantos Kan. "How did you manage to get those on their backs or keep them from tearing them off when the creatures finally became conscious?"

"They did not regain consciousness until the last minute," replied the earthman. "We kept the inside cabin of each troop ship filled with enough smoke to keep the rats unconscious all the way to Helium. We had plenty of time to attach the parachutes to their backs. The rats came to in midair after my men shoved them out of the ships."

John Carter nodded toward the disappearing creatures in the mountains. "They were very much alive and fighting mad when they hit the ground, as you saw," added the earthman. "They simply stepped out of their parachute harness when they landed, and leaped for anyone in sight.

"As for the malagors," he concluded, "they are birds—and birds on both earth and Mars have no love for snakes or rats. I knew those malagors would prefer other surroundings when they saw and smelled their natural enemies in the air around them!"

Dejah Thoris looked up at her chieftain and smiled.

"Was there ever such a man before?" she asked. "Could it be that all earthmen are like you?"

THAT night all Helium celebrated its victory. The streets of the city surged with laughing people. The mighty, green warriors of Thark mingled in common brotherhood with the fighting legions of Helium.

In the royal palace was staged a great feast in honor of John Carter's service to Helium.

Old Tardos Mors, the Jeddak, was so choked with feeling at the miraculous delivery of his city from the hands of their enemy and the safe return of his granddaughter that he was unable to speak for some time when he arose at the dining table to offer the kingdom's thanks to the earthman.

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But when he finally spoke, his words were couched with the simple dignity of a great ruler. The intense gratitude of these people deeply touched the earthman's heart.

Later that night, John Carter and Dejah Thoris stood alone on a balcony overlooking the royal gardens.

The moons of Mars circled majestically across the heavens, causing the shadows of the distant mountains to roll and tumble in an everchanging fantasy that played over the plain and the forest.

Even the shadows of the two people on the royal balcony slowly merged into one.

THE END

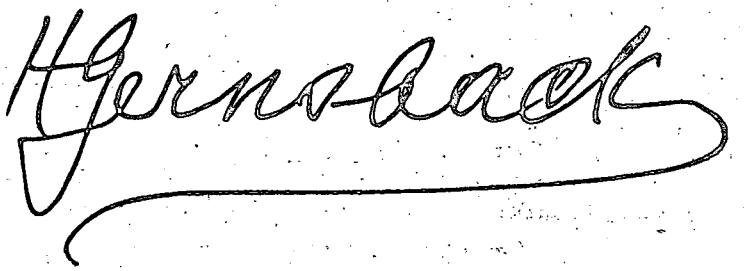
GUEST EDITORIAL

(Continued from page 7)

seats of learning will inaugurate science fiction societies, I can see only a vast and steady increase in this, the most exciting facet of literature in modern times.

All this augurs well for the future of AMAZING STORIES. May I therefore also congratulate its present owner, my good friend William Ziff, Jr.; its publisher, Michael Michaelson; and the talented editors of AMAZING STORIES, on the occasion of the 35th anniversary of this magazine.

And now a thought from our s-pun-sor. It may NOT be welcomed in certain quarters: There will come the future amazing day —now don't all laugh at once— when AMAZING STORIES will be *composed,* or perhaps outlined in detail, not by human authors, but by an *electronic biocomputer-menograph* (*menos*-mind). I also predict that this *Autocerebration* wonder is not likely to suffer from Science Fiction Fatigue nor Exhaustion.



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OUT of the SUB-UNIVERSE

By R. F. STARZL

The romantic notion that atoms contain microscopic universes with suns and planets like those in our solar system gained Ray Cummings instant literary success when he used it as the basis of his now-famous story, The Girl in the Golden Atom, *serialized in* ALL-STORY MAGAZINE *beginning Mar. 15, 1919. The theme was employed over and over again after that without much variation until R. F. Starzl, with his first professional appearance in* AMAZING STORIES QUARTERLY *for Summer, 1928, introduced an element which no previous author had considered; and which, if one accepted the original concept of worlds within worlds, was plausible enough to place a damper on the enthusiasm of subsequent science fiction authors for this idea. The originality of Starzl's story won him the cover of the issue in which it appeared, and the poignancy with which he handled the humanitarian aspects won him much praise. He went on to become one of the more popular authors of his period.*

IF YOU really are so anxious to go, I won't keep you from going any more," said Professor Halley with a sigh, to the young man who sat opposite to him in his laboratory. "Eventually it will become necessary for a human being to make the journey, and no one is better qualified than you to make an accurate report."

"Indeed, I should think not," smiled Hal McLaren, his friend and pupil, "as long as I've been your assistant, and, you might say, co-discoverer. But—" his

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Illustrated by FRANK R. PAUL



As he watched them in stupefaction, looking vainly for McLaren and Shirley a man separated himself from the crowd, walked to the edge of the table, made a deep obeisance, and called: "Where are we?"

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eyes clouded, "I don't know about Shirley. She wants to go along."

"I think you should let her go along if she wants to," said Halley slowly. "You know that I love my daughter even more than she loves you, but I realize that if you failed to come back, as our experimental rabbits failed to come back, she could never be happy again. She would rather be with you, no matter how inhospitable the little world to which you are going."

"But I will come back!" insisted Hale McLaren urgently. "We know why our experimental animals did not return. As soon as they arrived on the surface of whatever little planet they happened to land on, they did not bother to wonder where they might be. They simply wandered on, and of course it was impossible for our apparatus to find them again. You may be sure that I won't leave the landing spot."

"Nevertheless, it is possible you may fail to return. Shirley is almost a grown woman. We will explain the dangers to her, and if she still wants to go, she shall go."

He stepped to the telephone and called the number of his home, only a short distance from the little inland college where he was head of the physics department. In a few minutes Shirley came into the presence of the two men and regarded their soberness amusedly.

"Whose funeral are you holding today?" she asked.

"Don't talk of funerals at a time like this," said McLaren, little crossly. "We called you over here to explain to you again the danger of the trip you want to make with me. Frankly, I don't want you along, but your father says you can come if you want to."

"Of course I'm going!" she retorted with mock defiance. "Do you think I want to lose you to some atomic vamp?"

"This is serious," he persisted, refusing for once to yield to her rallying. He led the way to the corner of the big, bare room, where he moved aside a denim curtain sliding on a wire, which hid a maze of enigmatic apparatus, evidently electrical in its nature. In the center of a large helix, on a base of peculiar translucent green material, stood a great glass bell, large enough for two or three persons to stand inside. A bank of high-voltage vacuum tubes against one wall was connected by means of heavy copper tubing to various points on the helix. The translucent green base was supported on a number of cylinders, which formed a hydraulic hoist so that the heavy green

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disc could be lowered in order to permit the introduction of objects under the independently supported bell.

"I'm going to start in a few minutes," McLaren informed Shirley, and despite his assumed brusqueness, his voice betrayed a tremor of tenderness. "Your father is going to explain the danger to you, and if you still want to go, we start together."

"You know, Shirley" began Professor Halley in his best class-room manner, "that Hale and I have been engaging extensively in research work to discover the ultimate composition of matter. I will admit that we are as much in the dark regarding our primary quest as ever, but in our researches we have opened new vistas that are fully as beautiful and as interesting as the truths we first sought.

"By utilizing the newly discovered cosmic ray, which has a wave-length infinitely shorter than any other known kind of light, we have been able to get circumstantial evidence that electrons do not consist solely of a negative electric charge, as physicists have thought before, but that this charge is actually held by a real particle of matter, so infinitely small that we would never get direct evidence of its existence by the older methods.

"While pursuing these studies, we stumbled upon another property of the cosmic ray. We found that certain harmonics of the ray, when enormously amplified, have the property of reducing or increasing the mass and volume of all matter, without changing its form. We have discovered no limit to this power. We believe it is infinite.

"Now this suggests a possible solution of the problem of the constitution of the universe. Could we prove that the atom, with its central nucleus and its satellites, called electrons, is really only a miniature universe, in fact and not by analogy only, we could safely assume that the constituents of the infra-universe beneath us and the super-universe above us are only links of a chain that stretches into infinity!"

Professor Halley paused. His assistant was flushed and enthusiastic, and his daughter's cheeks glowed brightly and her eyes sparkled. But she was not looking at the apparatus; she was looking at the smooth, dark hair of her fiancé.

"We have sent things into that sub-universe," he continued, "chairs, coins, glasses, bricks and things like that. And we have brought some of them back. But when we sent guinea pigs or rabbits, or a stray dog

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into the world of mystery, we could not bring them back. Hale thinks the animals may have wandered away, out of focus of our rays. I don't know. He may be right, or they may have met some terrible unknown fate. Now he offers himself for the experiment. It is dangerous. It may be ghastly. But if you wish to go with him, you may. Your mother is dead. You may leave me lonely in my old age; but you may go—for science!"

A solemn hush followed the simple words. Then Shirley said clearly: "I will go."

THE PHYSICIST turned his head for a moment. When he faced them again, there was no sign of his mental struggle. Firmly, he threw a lever, and the green base silently lowered to the floor. McLaren and the girl stepped upon it, and when it rose again it carried them into the glass bell. The professor turned to the raised platform where the control board was located.

"Good-bye!" he called. "I'll bring you back when half an hour has passed."

"Good-bye!" they returned, their voices muffled.

A powerful generator sprang into action, filling the laboratory with its high-pitched whine. The vacuum tubes glowed dully, and a powerful odor of ozone permeated the air. With a loud crash, the high-tension electricity discharged between adjacent turns of the helix. The professor hastened to adjust a condenser, and again the silence was broken only by the whine of the generator and a low humming.

As the professor continued to adjust the controls, the bell gradually filled with a deep violet light that swayed and swirled tenuously like the drapes of an aurora borealis. The light swirled around the man and the girl, at times almost hiding them from view. It gradually concentrated toward the bottom of the bell, seeming to cling to the green base, intertwining the two living forms until it almost hid them from view. Yet they continued to smile and wave encouragement.

And now it was evident that they were growing smaller. Already they were less than four feet tall, and as the apparatus was brought more and more into perfect resonance, their rate of shrinkage accelerated. Soon they were but a foot high, standing in a sea of violet light, then six inches, then hardly an inch. The professor turned off the generator.

The girl and the man now walked the few inches necessary to bring them to the exact center of the base. Here, in a slight depression in the smooth material, was a tiny granule of carbon, one

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of the atoms of which they were to explore. It was so tiny that it could hardly be seen under the microscope, ordinarily, yet to McLaren, it must already have become plainly visible, for he soon spoke to the girl and she joined him, standing with him very closely near a spot on the floor which he indicated.

Again the mysterious harmonics of the cosmic ray were brought into action, and the two tiny figures vanished from sight. The professor stayed at the controls, his eyes fixed anxiously on his watch until the proper time had elapsed, as indicated by his calculations. He stopped the dynamo again and laid his watch on the table. He marked the time when he should recall them, 10 minutes after four, and paced nervously up and down the room in which he was now alone. Moisture beading his brow, he stopped and stared at the slight depression in which lay a million universes, each one as complete and as perfect as his own, and in one of those universes was a whirling speck on which he had deposited his daughter and best-loved assistant.

He started as the telephone whirred and disposed of a student who wanted to make a trifling inquiry. Then he went back to his watch again, listened to see if his watch might have stopped. It was very still in the laboratory, and when a small rill of water suddenly cascaded out of the cooling jacket of one of the heavy-duty vacuum tubes, the noise seemed loud and strident.

A new thought was now harassing Professor Halley. Suppose that in that unthinkably small world, there were dangerous creatures, whom Hale and Shirley might be battling for their lives even at that moment. Perhaps this world might happen to be a blazing sun; suppose they had gasped their lives out on a sterile and airless moon? He looked at his watch again. The half-hour was almost up. A few more minutes, and they'd be ready and waiting to come back—wouldn't do to turn on the ray while they might be a short distance away, out of focus.——A few more seconds——now!

WITH a fierce sweep, he threw the switch and the violet light filled the glass bell again. Quickly he reversed the current—then crept to the base of the glass dome so that he might see the returned wanderers as soon as they grew into visibility.

Within a few minutes a small cloudy patch appeared in the glassy depression where the microscopic granule of carbon lay. Before the physicist's eyes this spot resolved itself into hundreds of tiny dots—dots that grew rapidly until they resembled minute

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upright pegs—pegs that presently grew large enough to show arms and legs. Small human-like creatures that were plainly men and women by the time they were half an inch tall. Men and women that grew and walked about, and were evidently greatly perturbed.

Halley watched them with amazement until they were a few inches tall. He did not move until they began to be so crowded that there was danger of smothering some of them. Then he leaped to the switch to stop their growth, and lowered the green disc until it was at the same level as the table, to which some of the more venturesome now jumped for the sake of more room. As he watched them in stupefaction, looking vainly for McLaren and Shirley, a man separated himself from the crowd, walked to the edge of the table, made a deep obeisance, and called:

"Where are we?"

His voice was thin and reedy, like the chirp of an insect, and his accent was slurred and difficult to understand. Yet he spoke recognizable English.

"You are on earth," said Halley automatically.

This remark created the most profound impression. A thin, sighing cry arose from the little people, and many of them prostrated themselves. They wore filmy, short robes that came to their knees, held to their bodies by girdles. Men and women were dressed pretty nearly alike, but there was a well defined plan of ornamentation which distinguished the sexes.

The leader turned on them and cried.

"Hark! Hark! Is it not as we, your priests, have told you! To the faithful shall it be granted to be carried from our vale of tears to the Earth, with its portals of gold, where the milk and honey flows. You have heard the voice of the Angel. In a voice of thunder he has told you, you are at the gateway of the Earth, while those who believe not shall be cast into the outer darkness, where there is wailing and gnashing of teeth!

Someone in the background began a hymn. The mass of pygmy humanity joined, and the faint insect-like chorus filled the room.

Halley addressed the priest again.

"Where do you come from?"

"We are citizens of Elektron, so named by our illustrious ancestors, Haël, the Man, and Shuërrely, the Woman, who came to our planet in its youth, aeons and aeons ago—so many millions of years ago that they are to be reckoned only in geological epochs."

"How did you know the name of our earth?"

"It was handed down to us

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from generation to generation. It is preserved in our monuments and temples and in the records of our wise men. We knew for many ages that it is the elysium of perfection—the place of infinite happiness. For did not our illustrious forebears, Haël and Shuërrely, pine for the Earth, though they came to our Elektron when it was a young planet with a soft climate, and rich in luscious fruits?"

"You say Hale and Shirley came to your planet many ages ago? Wasn't your planet peopled then?"

"There were animals, some of terrifying size and frightful armament. But our Earth-sent ancestors, through superior cunning, overcame them, and their children gradually conquered all of Elektron. We are their descendants, but we have preserved their language, and their traditions, and their religion, and we treasured the Great Promise."

"The Great Promise?"

"The Great Promise," the Elektronite intoned, almost sonorously, despite his small size, "was given us by Haël and Shuërrely. They declared that a great wizard, an Angel of superlative power and understanding, would some day penetrate the vast empty Earth. On the spot where they first appeared, they commanded that their children reside and await the coming of the Angel, which they called Cosmicray. Many were there who fell from that true religion, but we have builded ourselves a temple on that sacred spot, and The Great Promise has been kept!"

Halley said to them dully, pain in his heart, "I am Shirley's father and Hale's friend, and it is not an hour since I sent them to your Elektron!"

But his grandchildren a thousand generations removed, again prostrated themselves and burst into song anew.

PROFESSOR HALLEY was in a decidedly awkward position. He narrowly escaped being indicted for murder. The disappearance of his daughter and his assistant naturally provoked inquiry, and the ugly suspicion was current that he had done away with them and consumed the bodies in his formidable looking Cosmic Ray machine.

Curiously enough, the proof which finally cleared him of the murder suspicion got him into trouble with the immigration authorities, who did not know what to do with several hundred lilliputian people who couldn't be deported to anywhere. Professor Halley positively refused to send them back to Elektron unless they agreed to go of their own free will, and none of them wanted to go back. Finally the immigration authorities consented to

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admit the Elektronites under bond, after they had been increased to normal size. Friends were found who assisted them in adjusting themselves to a new type of civilization, and according to latest reports, most of them are getting along very well.

The writer, after many attempts, finally obtained from Professor Halley a first-hand account of his experience and a detailed explanation of the operation of his invention. Skipping the technical details, which have nothing to do with this story, it is only necessary to give here the professor's own explanation of the remarkably fast life-cycle as lived on Elektron.

"I blame myself," said Professor Halley sadly, "for overlooking this important point. While it is true that the sub-universe resembles our own; while it is true that the electrons follow their orbits in a manner analogous to the planets around the suns; yet I overlooked the fact that due to the great difference in size there is also an enormous difference in time. It takes the earth a year to go around the sun; an electron circles its positive nucleus millions of times a second. Yet every time it completes its orbit it is like a year to the inhabitants.

"Before I had time to even blink an eye, Shirley and Hale had lived, loved, died, and many generations of their children had gone through their life cycles. It was normal to them—to us it was unthinkably brief."

He turned his patient face wearily toward the window, staring over the broad campus with unseeing eyes. They say his scientific apparatus is dusty from disuse, but the college board has decided to keep him on the faculty as long as he lives. He is a gentle, pathetic old man who will not live long.

THE END

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"I, ROBOT"

Illustrated by FUQUA

IF THERE *were to be a reader analysis of the most popular fictional character ever to appear in* AMAZING STORIES, *Adam Link, the robot created by Eando Binder for* I, Robot, *would be a serious contender for the distinction —even in a contest with such celebrated figures as John Carter, Buck Rogers, Professor Jameson, Taine of San Francisco, and Horsesense Hank. Even before the publication of* I, Robot, *Binder was regarded as one of the leading authors of the period. But he added new laurels to his reputation when he struck upon the idea of reversing the time-worn Frankenstein monster theme and making the artificial creation a hero instead of a menace. The idea set off a chain reaction that terminated in literary legalization of the rights and psychology of robots when Isaac Asimov framed the three "Laws of Robotics," forever emancipating the robot from the prejudice of inbuilt villainy.*

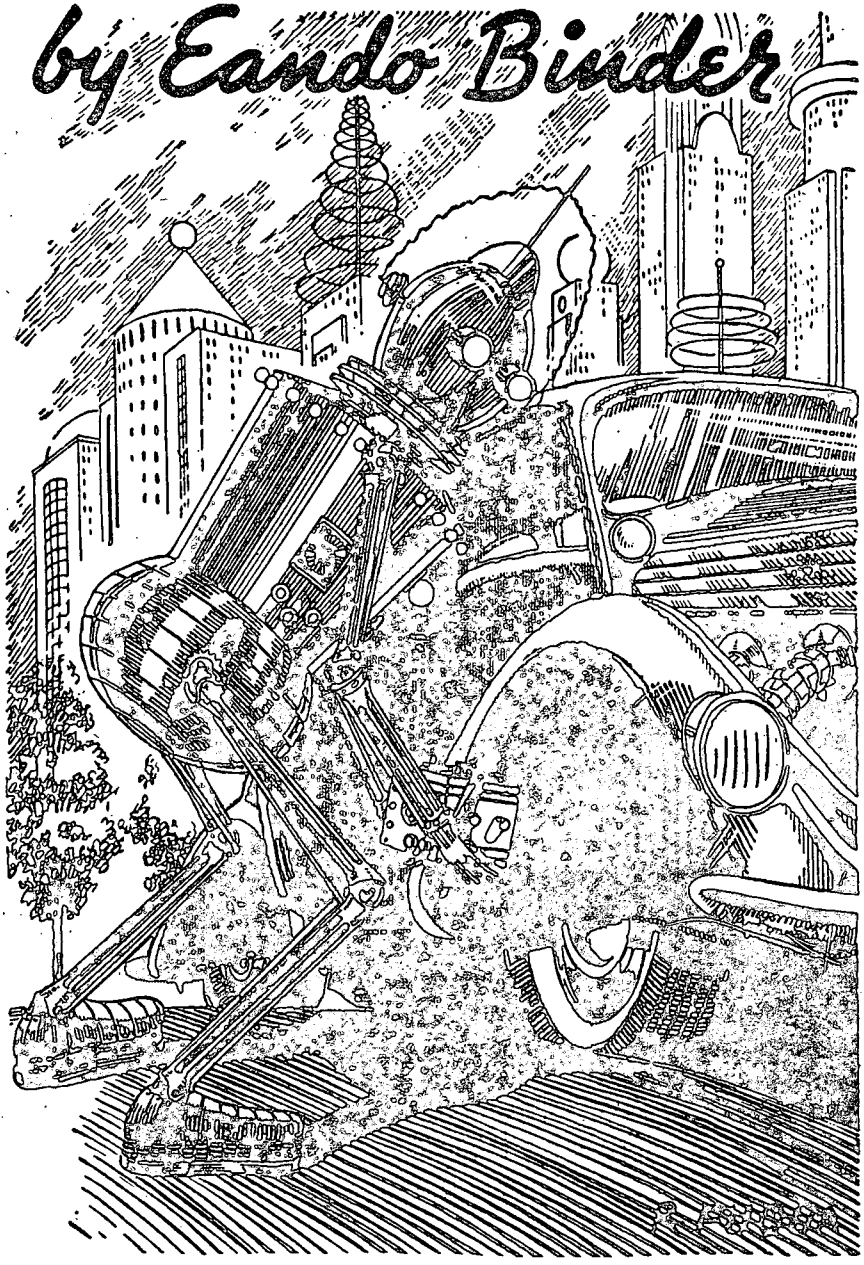
The notion of humanizing machines was already well advanced when I, Robot *appeared,*



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by Eando Binder



"I raised the floorboards, and in a short time had substituted batteries."

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but Binder's bold presentation in black and white terms provided the catalyst for a complete change of viewpoint, creating a vogue for robot stories that had them challenging interplanetary adventures for popularity. Eando Binder left the science fiction field in 1941. For more than 10 years he wrote the script continuity for Captain Marvel, a comic magazine character so popular that Hollywood based a motion picture serial on his adventures. Today, Binder has moved closer to the fold as editor of SPACE WORLD, *a serious non-fiction magazine devoted to developments in the advancement of space exploration.*

My Creation

MUCH of what has occurred puzzles me. But I think I am beginning to understand now. You call me a monster, but you are wrong. Utterly wrong!

I will try to prove it to you, in writing. I hope I have time to finish—

I will begin at the beginning. I was born, or created, six months ago, on November 3 of last year. I am a true robot. I am made of wires and wheels, not flesh and blood.

My first recollection of consciousness was a feeling of being chained, and I was. For three days before that, I had been seeing and hearing, but all in a jumble. Now, I had the urge to arise and peer more closely at the strange, moving form that I had seen so many times before me, making sounds.

The moving form was Dr. Link, my creator. He was the only thing that moved, of all the objects within my sight. He and one other object—his dog Terry. Therefore these two objects held my interest more. I hadn't yet learned to associate movement with life.

But on this fourth day, I wanted to approach the two moving shapes and make noises at them. Particularly at the smaller one. His noises were challenging, stirring. They made me want to rise and quiet them. But I was chained. I was held down by them so that, in my blank state of mind, I wouldn't wander off and bring myself to an untimely end, or harm someone.

These things, of course, Dr. Link explained to me later, when I could dissociate my thoughts and understand. I was just like a baby for those three days—a human baby. I am not as other so-called robots were—mere automatized machines designed to obey certain commands or arranged stimuli.

No, I was equipped with a pseudo-brain that could receive *all* stimuli that human brains

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could. And with possibilities of eventually learning to rationalize for itself.

But for three days Dr. Link was very anxious about my brain. I was like a human baby and yet I was also like a sensitive, but unorganized, machine, subject to the whim of mechanical chance. My eyes turned when a bit of paper fluttered to the floor. But photoelectric cells had been made before capable of doing the same. My mechanical ears turned to best receive sounds from a certain direction, but any scientist could duplicate that trick with sonic-relays.

The question was—did my brain, to which the eyes and ears were connected, hold on to these various impressions for future use? Did I have, in short—*memory?*

THREE days I was like a newborn baby. And Dr. Link was like a worried father, wondering if his child had been born a hopeless idiot. But on the fourth day, he feared I was a wild animal. I began to make rasping sounds with my vocal apparatus, in answer to the sharp little noises that the dog Terry made. I shook my swivel head at the same time, and strained against my bonds.

For a while, as Dr. Link told me, he was frightened of me. I seemed like nothing so much as an enraged jungle creature, ready to go berserk. He had more than half a mind to destroy me on the spot.

But one thing changed his mind and saved me.

The little animal, Terry, barking angrily, rushed forward suddenly. It probably wanted to bite me. Dr. Link tried to call it back, but too late. Finding my smooth metal legs adamant, the dog leaped with foolish bravery in my lap, to come at my throat. One of my hands grasped it by the middle, held it up. My metal fingers squeezed too hard and the dog gave out a pained squeal. *Instantaneously, my hand opened to let the creature escape!* Instantaneously. My brain had interpreted the sound for what it was. A long chain of memory-association had worked. Three days before, when I had first been brought to life, Dr. Link had stepped on Terry's foot accidently. The dog had squealed its pain. I had seen Dr. Link, at risk of losing his balance, instantly jerk up his foot. Terry had stopped squealing.

Terry squealed when my hand tightened. He would stop when I untightened. Memory-association. The thing psychologists call reflexive reaction. A sign of a living brain.

Dr. Link tells me he let out a cry of pure triumph. He knew at a stroke I had memory. He

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knew I was not a wanton monster. He knew I had a thinking organ, and a first-class one. Why? Because I had reacted *instantaneously*. You will realize what that means later.

I LEARNED to walk in three hours. Dr. Link was still taking somewhat of a chance, unbinding my chains. He had no assurance that I would not just blunder away like a witless machine. But he knew he had to teach me to walk before I could learn to talk. The same as he knew he must bring my brain alive fully connected to the appendages and pseudo-organs it was later to use.

If he had simply disconnected my legs and arms for those first three days, my awakening brain would never have been able to use them when connected later. Do you think, if you were suddenly endowed with a third arm, that you could ever use it? Why does it take a cured paralytic so long to regain the use of his natural limbs? Mental blind spots in the brain. Dr. Link had all those strange psychological twists figured out.

Walk first. Talk next. That is the tried-and-true rule used among humans since the dawn of their species. Human babies learn best and fastest that way. And I was a human baby in mind, if not body.

Dr. Link held his breath when I first essayed to rise. I did, slowly, swaying on my metal legs. Up in my head, I had a three-directional spirit-level electrically contacting my brain. It told me automatically what was horizontal, vertical and oblique. My first tentative step, however, wasn't a success. My knee-joints flexed in reverse order. I clattered to my knees, which fortunately were knobbed with thick protective plates so that the more delicate swiveling mechanisms behind weren't harmed.

Dr. Link says I looked up at him like a startled child might. Then I promptly began walking along on my knees, finding this easy. Children would do this more only that it hurts them. I know no hurt.

After I roved up and down the aisles of his workshop for an hour, nicking up his furniture terribly, walking on my knees seemed completely natural. Dr. Link was in a quandary how to get me up to my full height. He tried grasping my arm and pulling me up, but my 300 pounds of weight were too much for him.

My own rapidly increasing curiosity solved the problem. Like a child discovering the thrill of added height with stilts, my next attempt to rise to my full height pleased me. I tried staying up. I finally mastered the technique of alternate use of

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limbs and shift of weight forward.

In a couple of hours Dr. Link was leading me up and down the gravel walk around his laboratory. On my legs, it was quite easy for him to pull me along and thus guide me. Little Terry gamboled along at our heels, barking joyfully. The dog had accepted me as a friend.

I was by this time quite docile to Dr. Link's guidance. My impressionable mind had quietly accepted him as a necessary rein and check. I did, he told me later, make tentative movements in odd directions off the path, motivated by vague simuli, but his firm arm pulling me back served instantly to keep me in line. He paraded up and down with me as with an irresponsible oaf.

I would have kept on walking tirelessly for hours, but Dr. Link's burden of years quickly fatigued him and he led me inside. When he had safely gotten me seated in my metal chair, he clicked the switch on my chest that broke the electric current giving me life. And for the fourth time I knew that dreamless non-being which corresponded to my creator's periods of sleep.

My Education

IN three days I learned to talk reasonably well.

I give Dr. Link as much credit as myself. In those three days he pointed out the names of all objects in the laboratory and around. This fund of two hundred or so nouns he supplemented with as many verbs of action as he could demonstrate. Once heard and learned, a word never again was forgotten or obscured to me. Instantaneous comprehension. Photographic memory. Those things I had.

It is difficult to explain. Machinery is precise, unvarying. I am a machine. Electrons perform their tasks instantaneously. Electrons motivate my metallic brain.

Thus, with the intelligence of a child of five at the end of those three days, Dr. Link taught me to read. My photoelectric eyes instantly grasped the connection between speech and letter, as my mentor pointed them out. Thought-association filled in the gaps of understanding. I perceived without delay that the word "lion," for instance, pronounced in its peculiar way, represented a live animal crudely pictured in the book. I have never seen a lion. But I would know one the instant I did.

From primers and first-readers I graduated in less than a week to adult books. Dr. Link laid out an extensive reading course for me, in his large library. It included fiction as well

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as factual matter. Into my receptive, retentive brain began to be poured a fund of information and knowledge never before equalled in that short period of time.

There are other things to consider besides my "birth" and "education." First of all the housekeeper. She came in once a week to clean up the house for Dr. Link. He was a recluse, lived by himself, cooked for himself. Retired on an annuity from an invention years before.

The housekeeper had seen me in the process of construction in the past years, but only as as inanimate caricature of a human body. Dr. Link should have known better. When the first Saturday of my life came around, he forgot it was the day she came. He was absorbedly pointing out to me that "to run" meant to go faster than "to walk."

"Demonstrate," Dr. Link asked as I claimed understanding.

Obediently, I took a few slow steps before him. "Walking," I said. Then I retreated a ways and lumbered forward again, running for a few steps. The stone floor clattered under my metallic feet.

"Was—that—right?" I asked in my rather stentorian voice.

At that moment a terrified shriek sounded from the doorway. The housekeeper came up just in time to see me perform.

She screamed, making more noise than even I. "It's the Devil himself! Run, Dr. Link—run! Police—Help—"

She fainted dead away. He revived her and talked soothingly to her, trying to explain what I was, but he had to get a new housekeeper. After this he contrived to remember when Saturday came and on that day kept me hidden in a storeroom reading books.

A trivial incident in itself, perhaps, but very significant, as you who will read this will agree.

TWO MONTHS after my awakening to life, Dr. Link one day spoke to me in a fashion other than as teacher to pupil; spoke to me as man to—man.

"You are the result of twenty years of effort," he said, "and my success amazes even me. You are little short of being a human in mind. You are a monster, a creation, but you are basically human. You have no heredity. Your environment is molding you. You are the proof that mind is an electrical phenomenon, molded by environment. In human beings, their bodies—called heredity—are environment. But out of you I will make a mental wonder!"

His eyes seemed to burn with a strange fire, but this softened as he went on.

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"I knew I had something unprecedented and vital twenty years ago when I perfected an iridium-sponge sensitive to the impact of a single electron. It was the sensitivity of thought! Mental currents in the human brain are of this mirco-magnitude. I had the means now of duplicating mind-currents in an artificial medium. From that day to this I worked on the problem.

"It was not long ago that I completed your 'brain'—an intricate complex of iridium-sponge cells. Before I brought it to life, I had your body built by skilled artisans. I wanted you to begin life equipped to live and move in it as nearly in the human way as possible. How eagerly I awaited your debut into the world!"

His eyes shone.

"You surpassed my expectations. You are not merely a thinking robot. A metal man. You are—life! A new kind of life. You can be trained to think, to reason, to perform. In the future, your kind can be of inestimable aid to man and his civilization. You are the first of your kind."

The days and weeks slipped by. My mind matured and gathered knowledge steadily from Dr. Link's library. I was able, in time, to scan and absorb a page at a time of reading matter, as readily as human eyes scan lines. You know of the television principle—a pencil of light moving hundreds of times a second over the object to be transmitted. My eyes, triggered with speedy electrons, could do the same. What I read was absorbed — memorized — instantly. From then on it was part of my knowledge.

Scientific subjects particularly claimed my attention. There was always something indefinable about human things, something I could not quite grasp, but science digested easily, in my science-compounded brain. It was not long before I knew all about myself and why I "ticked," much more fully than most humans know why they live, think and move.

Mechanical principles became starkly simple to me. I made suggestions for improvements in my own make-up that Dr. Link readily agreed upon correcting. We added little universals in my fingers, for example, that made them almost as supple as their human models.

Almost, I say. The human body is a marvelously perfected organic machine. No robot will ever equal it in sheer efficiency and adaptability. I realized my limitations.

Perhaps you will realize what I mean when I say that my eyes

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cannot see colors. Or rather, I see just one color, in the blue range. It would take an impossibly complex series of units, bigger than my whole body, to enable me to see all colors. Nature has packed all that in two globes the size of marbles, for *her* robots. She had a billion years to do it. Dr. Link only had twenty years.

But my brain, that was another matter. Equipped with only the two senses of one-color sight and limited sound, it was yet capable of garnishing a full experience. Smell and taste are gastronomic senses. I do not need them. Feeling is a device of Nature's to protect a fragile body. My body is not fragile.

Sight and sound are the only two cerebral senses. Einstein, colorblind, half-dead, and with deadened senses of taste, smell and feeling would still have been Einstein—mentally.

Sleep is only a word to me. When Dr. Link knew he could trust me to take care of myself, he dispensed with the nightly habit of "turning me off." While he slept, I spent the hours reading.

He taught me how to remove the depleted storage battery in the pelvic part of my metal frame when necessary and replace it with a fresh one. This had to be done every 48 hours. Electricity is my life and strength. It is my food. Without it I am so much metal junk.

But I have explained enough of myself. I suspect that ten thousand more pages of description would make no difference in your attitude, you who are even now—

An amusing thing happened one day, not long ago. Yes, I can be amused too. I cannot laugh, but my brain can appreciate the ridiculous. Dr. Link's perennial gardener came to the place, unannounced. Searching for the doctor to ask how he wanted the hedges cut, the man came upon us in the back, walking side by side for Dr. Link's daily light exercise.

The gardener's mouth began speaking and then ludicrously gaped open and stayed that way as he caught a full glimpse of me. But he did not faint in fright as the housekeeper had. He stood there, paralyzed.

"What's the matter, Charley?" queried Dr. Link sharply. He was so used to me that for the moment he had no idea why the gardener should be astonished.

"That—that thing!" gasped the man, finally.

"Oh. Well, it's a robot," said Dr. Link. "Haven't you ever heard of them? An intelligent robot. Speak to him, he'll answer."

After some urging, the gar-

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dener sheepishly turned to me. "H-how do you do, Mr. Robot," he stammered.

"How do you do, Mr. Charley," I returned promptly, seeing the amusement in Dr. Link's face. "Nice weather, isn't it?"

For a moment the man looked ready to shriek and run. But he squared his shoulders and curled his lip. "Trickery!" he scoffed. "That thing can't be intelligent. You've got a phonograph inside of it. How about the hedges?"

"I'm afraid," murmured Dr. Link with a chuckle, "that the robot is more intelligent than you, Charley!!" But he said it so the man didn't hear, and then directed how to trim the hedges. Charley didn't do a good job. He seemed to be nervous all day.

My Fate

ONE DAY Dr. Link stared at me proudly.

"You have now," he said, "the intellectual capacity of a man of many years. Soon I'll announce you to the world. You shall take your place in our world, as an independent entity—as a citizen!"

"Yes, Dr. Link," I returned. "Whatever you say. You are my creator—my master."

"Don't think of it that way," he admonished. "In the same sense, you are my son. But a father is not a son's master after his maturity. You have gained that status." He frowned thoughtfully. "You must have a name! Adam! Adam Link!"

He faced me and put a hand on my shiny chromium shoulder. "Adam Link, what is your choice of future life?"

"I want to serve you, Dr. Link."

"But you will outlive me! And you may outlive several other masters!"

"I will serve any master who will have me," I said slowly. I had been thinking about this before. "I have been created by man. I will serve man."

Perhaps he was testing me. I don't know. But my answers obviously pleased him. "Now," he said, "I will have no fears in announcing you!"

The next day he was dead.

That was three days ago. I was in the storeroom, reading—it was housekeeper's day. I heard the noise. I ran up the steps, into the laboratory. Dr. Link lay with skull crushed. A loose angle-iron of a transformer hung on an insulated platform on the wall had slipped and crashed down on his head while he sat there before his workbench. I raised his head, slumped over the bench, to better see the wound. Death had been instantaneous.

These are the facts. I turned the angle-iron back myself. The

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blood on my fingers resulted when I raised his head, not knowing for the moment that he was stark dead. In a sense, I was responsible for the accident, for in my early days of walking I had once blundered against the transformer shelf and nearly torn it loose. We should have repaired it.

But that I am his murderer, as you all believe, is not true.

The housekeeper had also heard the noise and came from the house to investigate. She took one look. She saw me bending over the doctor, his head torn and bloody—she fled, too frightened to make a sound.

It would be hard to describe my thoughts. The little dog Terry sniffed at the body, sensed the calamity, and went down on his belly, whimpering. He felt the loss of a master. So did I. I am not sure what your emotion of sorrow is. Perhaps I cannot feel that deeply. But I do know that the sunlight seemed suddenly faded to me.

My thoughts are rapid. I stood there only a minute, but in that time I made up my mind to leave. This again has been misinterpreted. You considered that an admission of guilt, the criminal escaping from the scene of his crime. In my case it was a full-fledged desire to go out into the world, find a place in it.

Dr. Link, and my life with him, were a closed book. No use now to stay and watch ceremonials. He had launched my life. He was gone. My place now must be somewhere out in the world I had never seen. No thought entered my mind of what you humans would decide about me. I thought all men were like Dr. Link.

FIRST of all I took a fresh battery, replacing my half-depleted one. I would need another in 48 hours, but I was sure this would be taken care of by anyone to whom I made the request.

I left. Terry followed me. He has been with me all the time. I have heard a dog is man's best friend. Even a metal man's.

My conceptions of geography soon proved hazy at best. I had pictured earth as teeming with humans and cities, with not much space between. I had estimated that the city Dr. Link spoke of must be just over the hill from his secluded country home. Yet the woods I traversed seemed endless.

It was not till hours later that I met the little girl. She had been dangling her bare legs into a brook, sitting on a flat rock. I approached to ask where the city was. She turned when I was still thirty feet away. My internal mechanisms do not run silently. They make a steady noise that

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Dr. Link always described as a handful of coins jingling together.

The little girl's face contorted as soon as she saw me. I must be a fearsome sight indeed in your eyes. Screaming her fear, she blindly jumped up, lost her balance and fell into the stream.

I knew what drowning was. I knew I must save her. I knelt at the rock's edge and reached down for her. I managed to grasp one of her arms and pull her up. I could feel the bones of her thin little wrist crack. I had forgotten my strength.

I had to grasp her little leg with my other hand, to pull her up. The livid marks showed on her white flesh when I laid her on the grass. I can guess now what interpretation was put on all this. A terrible, raving monster, I had tried to drown her and break her little body in wanton savageness!

You others of her picnic party appeared then, in answer to her cries. You women screamed and fainted. You men snarled and threw rocks at me. But what strange bravery imbued the woman, probably the child's mother, who ran up under my very feet to snatch up her loved one? I admired her. The rest of you I despised for not listening to my attempts to explain. You drowned out my voice with your screams and shouts.

"Dr. Link's robot!—it's escaped and gone crazy!—he shouldn't have made that monster!—get the police!—nearly killed poor Frances!—

With these garbled shouts to one another, you withdrew. You didn't notice that Terry was barking angrily—at you. Can you fool a dog? We went on.

Now my thoughts really became puzzled. Here at last was something I could not rationalize. This was so different from the world I had learned about in books. What subtle things lay behind the printed words that I had read? What had happened to the sane and orderly world my mind had conjured for itself?

NIGHT came. I had to stop and stay still in the dark. I leaned against a tree motionlessly. For a while I heard little Terry snooping around in the brush for something to eat. I heard him gnawing something. Then later he curled up at my feet and slept. The hours passed slowly. My thoughts would not come to a conclusion about the recent occurrence. Monster! Why had they believed that?

Once, in the still distance, I heard a murmur as of a crowd of people. I saw some lights. They had significance the next day. At dawn I nudged Terry with my toe and we walked on. The same murmur arose, ap-

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proached. Then I saw you, a crowd of you, men with clubs, scythes and guns. You spied me and a shout went up. You hung together as you advanced.

Then something struck my frontal plate with a sharp clang. One of you had shot.

"Stop! Wait!" I shouted, knowing I must talk to you, find out why I was being hunted like a wild beast. I had taken a step forward, hand upraised. But you would not listen. More shots rang out, denting my metal body. I turned and ran. A bullet in a vital spot would ruin me, as much as a human.

You came after me like a pack of hounds, but I outdistanced you, powered by steel muscles. Terry fell behind, lost. Then, as afternoon came, I realized I must get a newly charged battery. Already my limbs were moving sluggishly. In a few more hours, without a new source of current within me, I would fall on the spot and—die.

And I did not want to die!

I knew I must find a road to the city. I finally came upon a winding dirt road and followed it in hope. When I saw a car parked at the side of the road ahead of me, I knew I was saved, for Dr. Link's car had the same sort of battery I used. There was no one around the car. Much as a starving man would take the first meal available, I raised the floorboards and in a short while had substituted batteries.

New strength coursed through my body. I straightened up just as two people came arm-in-arm from among the trees, a young man and woman. They caught sight of me. Incredulous shock came into their faces. The girl shrank into the boy's arms.

"Do not be alarmed," I said. "I will not harm you. I—"

There was no use going on, I saw that. The boy fainted dead away in the girl's arms and she began dragging him away, wailing hysterically.

I left. My thoughts from then on can best be described as brooding. I did not want to go to the city now. I began to realize I was an outcast in human eyes, from first sight on.

Just as night fell and I stopped, I heard a most welcome sound. Terry's barking! He came up joyfully, wagging his stump of tail. I reached down to scratch his ears. All these hours he had faithfully searched for me. He had probably tracked me by a scent of oil. What can cause such blind devotion—and to a metal man!

Is it because, as Dr. Link once stated, that the body, human or otherwise, is only part of the environment of the mind? And that Terry recognized in me as much of mind as in humans,

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despite my alien body? If that is so, it is you who are passing judgment on me as a monster who are in the wrong. And I am convinced it is so!

I hear you now—shouting outside—*beware that you do not drive me to be the monster you call me!..*

THE NEXT dawn precipitated you upon me again. Bullets flew. One struck the joint of my right knee, so that my leg twisted as I ran. One smashed into the right side of my head and shattered the tympanum there, making me deaf on that side.

But the bullet that hurt most was the one that killed Terry!

The shooter of that bullet was twenty yards away. I could have run to him, broken his every bone with my hard, powerful hands. Have you stopped to wonder why I didn't take revenge? Perhaps I should! . . .

I was hopelessly lost all that day. I went in circles through the endless woods. I was trying to get away from the vicinity, from your vengeance. Toward dusk I saw something familiar—Dr. Link's laboratory.

My birthplace! My six month's of life here whirled through my mind with kaleidoscopic rapidity. I wonder if my emotion was akin to what yours can be! Life may be all in the mind. Something gripped me there, throbbingly. The shadows made by a dim gas-jet I lit seemed to dance around me like little Terry had danced. Then I found the book, "Frankenstein," lying on the desk whose drawers had been emptied. Dr. Link's private desk. He had kept the book from me. Why? I read it now, in a half hour, by my page-at-a-time scanning. And then I understood!"

But it is the most stupid premise ever made: that a created man must turn against his creator, against humanity, lacking a soul. The book is all wrong.

Or is it? . . .

As I finish writing this, here among blasted memories, with the spirit of Terry in the shadows, I wonder if I shouldn't . . .

It is close to dawn now. You have me surrounded, cut off. In the light you will rout me out. Your hatred lust is aroused. It will be sated only by my—death.

I have not been so badly damaged that I cannot still summon strength and power enough to ram through your lines and escape. But it would only be at the cost of several of your lives. And that is the reason I have my hand on the switch that can blink out my life with one twist.

Ironic, isn't it, I have the very feelings you are so sure I lack?

(signed) Adam Link.

THE END

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The FLYING FOOL

By DAVID H. KELLER, M. D.

Illustrated by MACKAY

THE PRIMARY purpose of a science fiction magazine is to entertain. It so happens that stimulating new ideas entertain science fiction readers the most; therefore, almost in spite of itself, science fiction frequently possesses intellectual content. Beyond that, once in a while an author comes along with a story which—though technically science fiction—incorporates enough universal truth to make it worthy of mainstream consideration. The Flying Fool *is such a story; and the life of Robert Smith, its hero, despite his search for antigravity, echoes in its quiet desperation the plight and yearnings of many of us. Dr. Keller tells Robert Smith's story with infinite compassion and a simplicity of narration that conceals superb artistry. An early discovery of* AMAZING STORIES, *David H. Keller, M.D., was twice voted (in polls conducted by a national magazine in 1934 and 1935) the most popular science fiction writer in the world.* The Flying Fool *easily helps one to understand the basis of his popularity.*

ROBERT SMITH gave an exclamation of astonishment. He turned to his wife and said:

"I see that Einstein has reduced all physics to one law."

Mrs. Smith was darning stockings at the other side of the table. The world that she was living in was a rather new world, but the stockings still had holes in them. In fact, the two dollar silk stockings had as many holes as the fifty cent Lisle variety used to have. Life for Mrs. Smith was not so very interesting. Even her two-year-old daughter, who had most inconsiderately arrived in the eleventh year of an otherwise uneventful companionate marriage, failed to provide the blasé wife with thrill, though she did furnish lots of hard work.

Robert Smith was an inven-

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In fancy Smith was now up in the air. Now he could stay up without turning over. He could press a button and go up, also press another button and slowly come down—like a thistledown.

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tor. That is, he was a dreamer of great innovations by night, and a seller of laces and ribbons in a large department store in the daytime. Naturally, such a spending of the twenty-four hours did not provide his wife with the luxuries of life and, gradually, through the years, she had come to regret the fact that her husband was just plain Robert Smith instead of an Edison. Of course, when she married him she was under the delusion that he really would invent something which would make them wealthy. She now saw, after thirteen years of gradually increasing disappointment, that her husband would always remain a salesman of ribbons.

Her husband tried to keep her interested in his dreams. That was hard to do when she had so many stockings to darn and buttons to sew on. Besides, at the end of the day, she was tired. Also her mind had never been much interested in higher mathematics or the laws of physics and all other interesting things that her husband felt useful to him in his nocturnal career as an inventor. Frequently, she did not even have an idea of what he was talking about, and his efforts to tell her, simply added to their mutual dissatisfaction with each other. Something of this kind happened on this particular evening. Smith said:

"I see that Einstein has reduced all physics to one law."

His wife looked up from her darning, as she said rather slowly:

"I think that is a good thing. We have too many laws as it is. What State does this man Einstein come from? I do not recall his name. But I really do not see how all the laws could be put into one law. That must be a newspaper mistake."

"Einstein, my dear, is a German," replied her husband.

"Well, of course, they have to be represented. Still I think that they ought to be careful in regard to electing these foreigners. He may be Bolshevik."

"You still do not understand. This man is not a senator. He is a scientist. When it says that he has formulated a new law, it means a law of physics. It has nothing to do with government."

"Well, why didn't you say so in the first place? You said a law. I guess I know what a law is. And another thing, don't yell at me so. You talk so loud that it is no pleasure to listen to you any more. If you would spend your evenings in taking a correspondence course in something instead of reading about things nobody understands, you would get away from that ribbon and lace counter. I showed you that paper about the Improvement Institute. A man was taking that

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course and he changed from a salary of twenty dollars a week to ten thousand a year, and he only studied ten weeks. Well, what about this new law?"

"It means this," replied Smith, in a rather low voice; "many centuries ago man realized that light and heat were related. Then Joule and Rumford showed that light, heat and energy are related according to definite physical laws. Thus, energy was added to light and heat. Now, gradually, the scientists have shown that to these three forces can be added matter, space, time, gravitation and electricity. The only factor absent was to determine the relation between electricity and gravitation. According to Einstein, there is only one substance, 'the field,' and this field contains electrical and gravitational components which are closely tied together by a single formula. That, to me," said Smith gravely, "is a most remarkable discovery."

"And to me," replied his wife, "it does not mean a thing."

"But you do not understand just what this means!" almost shouted Robert Smith. "This article says that it means that man can fly. Not in a plane or a balloon, but just go up in the air! The thing that holds us to the earth is gravitation. If that can be overcome, why mankind can go up into space. I believe I see something in that, a very simple machine, which could be produced for a few hundred dollars——"

But his wife interrupted him. She was led to do so by past experience.

"A few hundred dollars would pay our expenses for several months."

But Robert Smith was so absorbed that he never heard her remark. Just then the baby cried in the next room.

"Robert," said Mrs. Smith, "will you go and tend to the baby? I must finish this mending. You know it is your child as much as it is mine."

"Please stop calling the baby 'it.' She is too old, and besides, she has a very nice name."

Nevertheless, he put down the paper and disappeared into the shadows of the next room to attend to the baby.

WHEN he returned from the care of the baby, he found that his wife had gone to bed. The sounds from the bedroom indicated that she was fast asleep. So, relaxing, Smith started to read the article very carefully. He read that a New York professor was making some startling statements about the new law of Einstein. He prophesied that the time would come when airplanes would be able to remain in the air without en-

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gines or visible support; that a man, properly equipped, could step out of a twenty-story window and not be in danger of falling; and that, were it not for the deadly cold of the regions beyond the earth's atmosphere, a trip to the moon might be a very easy matter. This law provided a means for insulating the body against the laws of gravitation.

"That would be rather fine," said Smith, softly, to himself. "That would be the real thing. This air work they are doing now is too complicated. I do not believe that it will ever be popular. Besides, it is so very dependent on machinery and fuel, and a person has to keep going. Now, my idea is to go up in the air about fifty feet and just slowly mosey around. I feel that it would be so much more pleasant than the way they do it now. Then I would want to stop, if I saw anything interesting beneath me, and stay where I was in the air till I had made a thorough examination of the particular object my attention had been called to. You cannot do that in a plane—in one of those things a man has to keep on moving or fall. The big thing would be to have a cheap apparatus, costing a few hundred dollars. Something that would go up easily, stop at any point and stay there in the air; something that would move slowly, be easily guided and in some way obtain all of its power through the air. It would have to go up like a slow elevator and come down like a feather or a thistledown.

"That would be a fine apparatus to own. A man could go on little excursions in the evening, after the wife was asleep, and it would sort of take his mind off of things. There are so many things that I would like to see from the air. I bet Broadway would be an interesting sight, or the Statue of Liberty, and it certainly would be a lark to take a piece of chalk and write your name on the top of the Washington Monument. Of course, for a long trip it would be necessary for me to tell the wife just where I was going—but, perhaps, she would have no objections if I brought back a nice present for her. Going across the ocean would be a little dangerous, but it ought to be safe to go up the Hudson. After a little practice a man could go a great distance, if he had a box of lunch with him.

"It all ought to be rather easy. All we need is a starter and a stopper, and, of course, the stopper would be just a gradual shutting off of the starting force. Then there would have to be something to cause a progressive movement in the air, something like the propeller of an

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airplane and something more to guide the thing with, and there would have to be a method of obtaining power from the air; of course, there is lots of power and all kinds of electrical waves, but the question of hooking the engine on to them is a different matter.

"If I could just do that—just that simple invention—I would be rich—perhaps, rich enough to educate the baby. I believe I can do it if I can only work out a few of the details. There would have to be some kind of a chair to sit on and something to keep the whole machine from turning upside down. That would be most embarrassing, even to be a hundred feet in the air and have it turn over and dump you out. I would not like that to happen—at least, not until I have more insurance."

THE NEXT morning he was once again a seller of ribbons and laces, but it was hard to keep his mind on the delicate difference in the tints and colors and the various designs of lace. He sold these things, standing behind a counter, to dozens of ladies standing before the counter, but his soul was far away—in the air. He day-dreamed of floating up and whispering in the ear of the Sphinx, that peculiar woman who could live a thousand generations without betraying a secret or uttering a word. He thought that it would be fine to go slowly over the top of Mount Ararat and see if the Ark was still there, where it had grounded in the days of Noah. He promised himself that he would spend a Sunday over the Battlefield of Gettysburg, a place sacred to him because his grandfather had died there.

That noon, as he ate the lunch that he always brought with him from home, he feverishly read the evening paper. He was still on the trail of Einstein. It was a singular coincidence that he found one of the very facts that he was looking for. It was just a simple statement to the effect that the Bell Telephone laboratories had produced a new alloy called permalloy, which was particularly sensitive in its relation to magnetism. When a bar of it was placed above a magnet, the bar of permalloy rose in the air and floated an inch above the magnet.

That made Robert Smith do a lot of thinking. Could a man pull himself up in the air by lifting on his bootstraps? Suppose there was a magnet and resting on it was a bar of permalloy? Both the magnet and the bar would be of the same size. The bar is repelled by the magnet to such a degree that it rises two inches above it and remains suspended in the air. What Smith

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could not make out was this problem. Suppose the bar was fastened to the magnet so that it could only rise one inch in the air? But is the other inch to be ignored? There is a pull there. Would it go up the extra inch? If it did, it would have to pull the magnet with it, as they cannot be more than an inch apart. If it kept on doing that, what was there to keep it from going on right up into the air? The magnet would be the same. The permalloy would always try to withdraw two inches from the magnet, and in doing so, it would always pull the magnet upward. *If it did, then gravitation would be overcome,* and if a man was seated on the bar, he would go up with the magnet and the bar.

Of course, Smith realized that certain formulas would have to be determined. Just how much should the bar of permalloy weigh in proportion to its weight or in relation to the size of the magnet? How long would the magnet retain its magnetism? Could it be recharged by electrical induction while it was in the air? But to Smith's eager mind these were but details, petty trifles to be worked out after the larger facts had been determined. What he was sure of was his ability to rise in the air, provided he had a magnet and a bar of permalloy and a chair to sit on fastened to the bar.

Hastily eating his dinner, he went to a public telephone booth and called up the Bell Telephone Company. Had they any permalloy to sell? To his surprise, they said they had and how much did he want—it was ten dollars a pound—in the form on a very fine wire. He said he would call them later, and went back to the ribbon and lace counter. He knew that he could secure a magnet without difficulty, but how could he manage with five pounds of wire? For fifty dollars was about all that he could spend. Even that was a birthday present that he had carefully concealed from his wife. Then the wonderful thought came to him. After long months of careful saving on the part of his wife, she had finally put aside enough to get a new suit for him—a real tailor-made suit. There had been several trying periods of measurements and fittings. He would take this five pounds of fine wire and have the tailor sew it in, in some way, all through the suit. Then all he would need was a chair tied to the magnet and himself tied to the chair—and up they would go.

"I may be a flying fool," he whispered to himself, "but it certainly will be wonderful."

It took him several days of going without his lunch to buy the metal wire and show the puzzled tailor just what he

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wanted done. Of course, this increased the charge for the suit, but Smith paid that himself out of his personal allowance. He was particular in his instructions that under no circumstance was his wife to be told about the wire. He finally obtained a promise that the suit would be delivered in a few weeks. As a matter of fact it was delivered and hung in the moth bag a full week before the rest of the machine was completed.

IN FANCY, Smith was now up in the air. He had taken no time at all in perfecting a simple arrangement of wires which, when a button was pressed, would extract a powerful current of electricity from the atmosphere, and this, as everyone has known from the days of Benjamin Franklin, is constantly surcharged with this mysterious force. It was no trick at all to get the magnet and attach to it the wires. He arranged to have the starting button at the side of his chair. He was going to press the button; that would greatly increase the magnetism which would repel the permalloy in his clothes, and up they would go. When he wanted to come down, he would cease to pull the electricity from the air, the magnetic force would slowly wear out, and down he would come, like a thistledown—he liked the idea of coming down like a thistledown—any other thought made him shudder.

But the question of balance bothered him. Suppose he tilted? And turned over? Where would the pull come then? Certainly it would be difficult to enjoy a ride upside down. And landing on the ground, head first, tied to a chair, would be too ridiculous. Then he thought of the gyroscope! That solved everything. It would be the stabilizer. Nothing would be easier than to have a gyroscope under the chair. All he had to do was to make the gyroscope the wheel of an electric motor, with finely adjusted contact mechanisms to reduce to a minimum the problem of friction. He could run the motor from the same electrical source that he used to electrically induct his magnet. Now, he was up in the air and was going to stay right-side-up.

The securing of a small gyroscope was a problem that almost proved to be too great for the ribbon seller. He probably never would have solved it were it not for a friend, who, knowing of his problem, told him of a small private yacht that was being torn to pieces as junk. This small pleasure boat had an equally small gyroscope to keep it from rolling at sea. Smith found out what the cost was, and it was possible, by selling some very

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special jewels left him by his father to buy that gyroscope. It was very small, but it worked perfectly and fitted to perfection in the space under the seat of the chair. And it was almost noiseless.

Now he could stay up without turning over. He could press a button and go up, and another button and slowly come down, like a thistledown, and all the time the little gyroscope would keep him right side up. Now, all his problems were solved and all his money gone, and he still had the problem of moving through the air. It would not be very interesting to just go up from the balcony and stay up for a while and then come down on the balcony again, though, of course, that would be pleasant on a hot evening and rather a relief at other times. But he wanted to move. He wanted to go somewhere, if only to Coney Island. He grew rather tired of seeing his wife darn stockings—every night; though it was dear of her to do so.

Then, as a last resort, he conceived the idea of using an electric fan. He could attach it to the back of the chair, or he could fix it so that it would have a movable point of attachment. Then he could go and come and perhaps even turn around. He would not go fast—but he did not want to go fast—He just wanted to go somewhere and see something. It made no difference what it was, just so he could get away from the daily grind of laces and ribbons and ribbons and laces and more laces and starting to work every morning and back again every night and stockings—He was ashamed of himself, but he was nervous about those stockings, and he knew that it was his fault that they were not thrown away and new ones bought. Men were wearing such fancy stockings now-a-days, but he only got stockings at Christmas as presents from his wife, and from his mother.

He had an electric fan. He experimented and found, to his surprise, that he could run it on electricity taken from the air in the same way that he was securing the electric current for the motor of the gyroscope. And right there Robert Smith hovered on the edge of becoming a multimillionaire. Had he patented that little idea and protected the patent, his wife would have no more need to darn stockings, but all he could think of at that time was going up in the air. He adored calling himself a flying fool. It sounded so very devilish.

Naturally, he could not assemble the pieces of this apparatus without his wife having

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some idea that a new invention was in process of birth. But she had lived through so many of these wonderful moneymaking plans that never amounted to a hill of beans, that this latest effort of her husband's left her cold and uninterested. She simply deplored silently and openly the fact that he was not getting more sleep, as she was sure this insomnia would result in his lowered efficiency as a salesman of ribbons and laces, and that, as she often said, was really the way that they managed to live from year to year, and it was especially important now, since little Angelica had come to live with them. She always said it that way, as though, by placing the initiative on the baby, she took from her own shoulders the burden of having made a failure of the major factor of companionate marriage.

The Smiths lived in an old-fashioned part of the city. In fact, unkind friends said behind their backs that they lived in the slums. However, their house had a balcony extending back from the second story and this balcony having no roof, it was especially desirable as a starting and landing place for Smith's new anti-gravitation machine. Two small bedrooms opened out on this balcony by French windows. The fact that the bedrooms connected with each other, made it an ideal arrangement. The baby slept in one room and her parents in the other. When she cried, it was very easy for the one who heard her first to look after her —and Robert Smith was a light sleeper.

GRADUALLY, Smith assembled his machine on this balcony. When he was not working at it, he kept it covered with an old canvas. It just looked like an old chair to his wife; so, she did not bother it, and as the weather was cold, she humored him by allowing him to use the electric fan. In her way she loved him, but, perhaps, her affection would have equaled her devotion had he been able to secure for the family a better income. However, she was really in love with him, and even if life had not brought her all she had hoped for, she was inclined to be philosophical about it. So she left his funny old chair alone, and kept on darning the stockings and trying to make a dollar buy two dollars' worth of food.

Finally, the machine was completed. Smith sat in the chair one night and tested the different parts. One button started the gyroscope, another started the fan, while a third made the fan move slowly on its metal track. There were other buttons connected with the magnet, but they were useless, so long as he

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did not have on his new suit. Several nights after the suit came he waited till his wife was asleep and then lovingly took it out of the moth bag. The tailor had been rather skillful in sewing the wire in through the various garments.

All was ready. Valuable evenings had been spent working on the mathematics of the invention. He wanted to be sure that it was powerful enough to carry his weight and also the weight of the entire machine. Even while he was working, the singular thought came to him that all his calculations were unnecessary, because if the permalloy was repelled by the magnet it had to take with it anything that it was attached to. Right here the idea came to him of a small circular track, with a block of permalloy on wheels, constantly retreating from a magnet on wheels. The very idea of it—the constant revolutions—why, it was almost perpetual motion—made him so dizzy that he nearly fell out of his chair, and his wife insisted on his taking a dose of calomel.

At the end of his calculations he was satisfied that nothing had been neglected. It was just a question of putting on that new suit, strapping himself to the chair and pressing a few buttons. He decided to wait till the moon was full and that would be just one more night. Then when he was sure that his wife was asleep, he would dress and soar. In a peculiar way, that was hard for him to understand, this first adventure in the air meant freedom to him, and yet he did not comprehend just what it was that he wanted a release from.

All that he was afraid of was that it would rain. Of course, he knew that he could carry an umbrella, but that seemed, somehow, to be hardly suitable.

When the next evening came, he found that all of his fears had been useless. It was not only clear, it was a wonderful night. A strong wind had cleared the atmosphere; it was warm; there was hardly a breath stirring at ten o'clock, and the moonlight was so strong that it was almost possible to see the print on a newspaper.

Mrs. Smith unconsciously helped her husband in his plans by going to bed early. In fact, she was sound asleep by nine. The baby had been asleep for several hours. Smith tiptoed into their bedroom, took the new suit, moth bag and all, and tiptoed into the baby's room. There he rapidly and as quietly as he could, changed suits. He was glad to see how well the coat and vest fitted him. On his way to the balcony he had to pass the little crib. He paused a moment,

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even touched the little girl's hand. She had always been a wonder to him—he never fully understood just how it was that she had come into his life—but at night, as she slept, she was almost a miracle. For a long minute he hung over the crib, to satisfy himself that she was breathing. And the love that passed between them in some way recalled another love, and he thought of his wife, of what had been, of their early hopes and ambitions and how, gradually, one by one those hopes had slowly been blasted, and now, at the age of nearly fifty, he was still a salesman of ribbons and laces. He quietly walked to her bedside —she was still a pretty woman— and he realized, as never before, just what she had meant to him and what she had done for him and sacrificed for him in all those years of their married life. And in addition, she had somehow found that little new love of his, the charming Dresden china baby, Angelica. Yes, he was lucky to have her as his wife.

He bent over and kissed her hair and then, sighing, passed through the door, out on the gallery, where his soaring invention awaited him. He sat down in the chair and started to fasten the straps. Everything was all ready. He had only to press the starting button—

And the baby cried.

SMITH sat still; perhaps she would go to sleep; but she cried again.

A woman's clear voice came to his straining ears:

"Robert, can you take care of the baby? She has cried twice now and I am sure that she needs attention. I am so sleepy, and I know you are still dressed."

"I will attend to her as soon as I can," Smith replied. He unstrapped himself and went into the nursery. Sure enough Angelica needed help. With skillful, loving hands, he quietly cared for her, talking little nonsense verses to her as he did so, in the hope that she would not become wide-awake. But she did. When he left her crib, her little whimperings told him that she wanted him. She even sat up in bed and the next moment was standing up, ready to play.

He tried to persuade her to lie down. He told her that papa was building a flying machine and if she was a good girl, he would let her ride in it, like a bird some day. He had made this promise to her before, and it had always put her to sleep, but this time it only seemed to make her more excited.

"Angie fly birdie," she insisted.

Sighing, Robert Smith took his daughter out of the crib, and then the wonderful thought came to him that it would be a

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fine thing to take her with him. He could hold her in one arm and manage all the buttons with the other hand. He carried Angelica out on the balcony and reseated himself in the chair. It was a little hard to strap himself in, but he finally did so, and he even found enough strap left over to put around the baby.

She enjoyed it all.

"Angelica," whispered the gray-haired man, "your father is a flying fool and so is his little baby."

"Angie fly birdie," she cooed.

Robert Smith shut his eyes. At last he had come to the parting of the ways. Here was freedom and adventure. His heart began to beat faster; he held the baby so tight that she began to whimper—then *he pressed the starter button.*

And waited.

Nothing happened—not a thing was different—sickened with disappointment, he realized that nothing would happen. Somewhere there had been a mistake.

As he sat there, the little girl went to sleep. Tired of waiting, anaesthetized by the fresh air, perhaps a little cold, she had cuddled close to her father and gone to sleep. Almost as in a dream, Robert Smith unstrapped himself and carried his sleeping daughter to her crib. She simply relaxed and kept on sleeping.

Then Smith undressed—he put his new suit back in the moth bag and hung it up—and then he prepared for bed. Somehow, his wife awoke. It was a rather unusual thing for her to do this, and Smith did not understand it till she started to talk to him.

"You know, Robert, a most unusual thing happened this week, and I have been trying to find time and the right occasion to tell you about it. You know how I planned and saved for that new suit, and how proud I was to think that at last you were going to have one tailormade instead of a hand-me-down. Well, when that suit came, I examined it carefully, and it had the most peculiar wire threaded through it, long pieces. I worked and worked at it and finally got it all out, and I took it to a dealer in old metals and he said he would give a dollar a pound for it, and it weighed just five pounds. So, there I had five dollars, and I spent it for stockings for you. I bought you six pairs, and they are guaranteed to be hole-proof. You needed some new stockings. I have tried to darn them as carefully as I could, but I really don't see how you could wear them, being on your feet the way you are all day. Now, how can you explain that wire in that new suit? I called up the tailor and I believe he was puzzled himself; at least, he acted so."

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"It certainly is odd," answered her husband. "But I am glad you bought me the new stockings. You sew too much. Did you buy me striped or colored ones?"

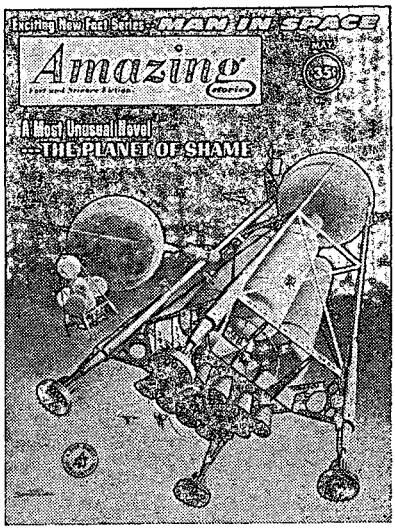
"No. I thought for your ribbon and lace work it would be better to have black ones. Do you know, I am wide-awake? I want to talk. I was reading today about a man's claiming that some day men would float through the air. What do you think of that?"

"I think that any man who wanted to do a thing like that would be a flying fool!" said Robert Smith slowly. Then he forced himself to go to sleep, for the next day he would be busy, selling ribbons and laces.

THE END

COMING NEXT MONTH

An anniversary issue is a tough one to follow, but the May AMAZING has some very special fact and fiction scheduled.



Featured is the first instalment of a most unusual new novel by **Bruce Elliott.** Titled *The Planet of Shame*, it tells the story of a quartet of rebels in a world where disease is treated by sin, and sin is considered a crime. If you think there are no new societies under the science-fiction sun, you'll be delightfully surprised.

On the non-fiction side, the May issue will begin a magnificent new series of imaginative examinations of today's facts about *Man In Space*. These will be written by **Frank Tinsley,** well-known writer, illustrator and expert on space transportation and colonization. The first article will take you to a space station just off Earth.

In addition there will be several top-notch short stories and all our regular departments will be back.

May AMAZING on sale at your newsstand on April 11.

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ARMAGEDDON-2419 A.D.

By PHILIP FRANCIS NOWLAN

Illustrated by PAUL

THE August, 1928, issue of Amazing Stories *was beyond question one of the most important not only in its history but in the history of science fiction. That would have been the case if it had only presented to the science fiction public a new author named Edward Elmer Smith with the first installment of "The Skylark of Space." But its immortality was assured by introducing Anthony "Buck" Rogers to the world in a 25,000 word novelet titled "Armageddon—2419," by Philip Francis Nowlan.*

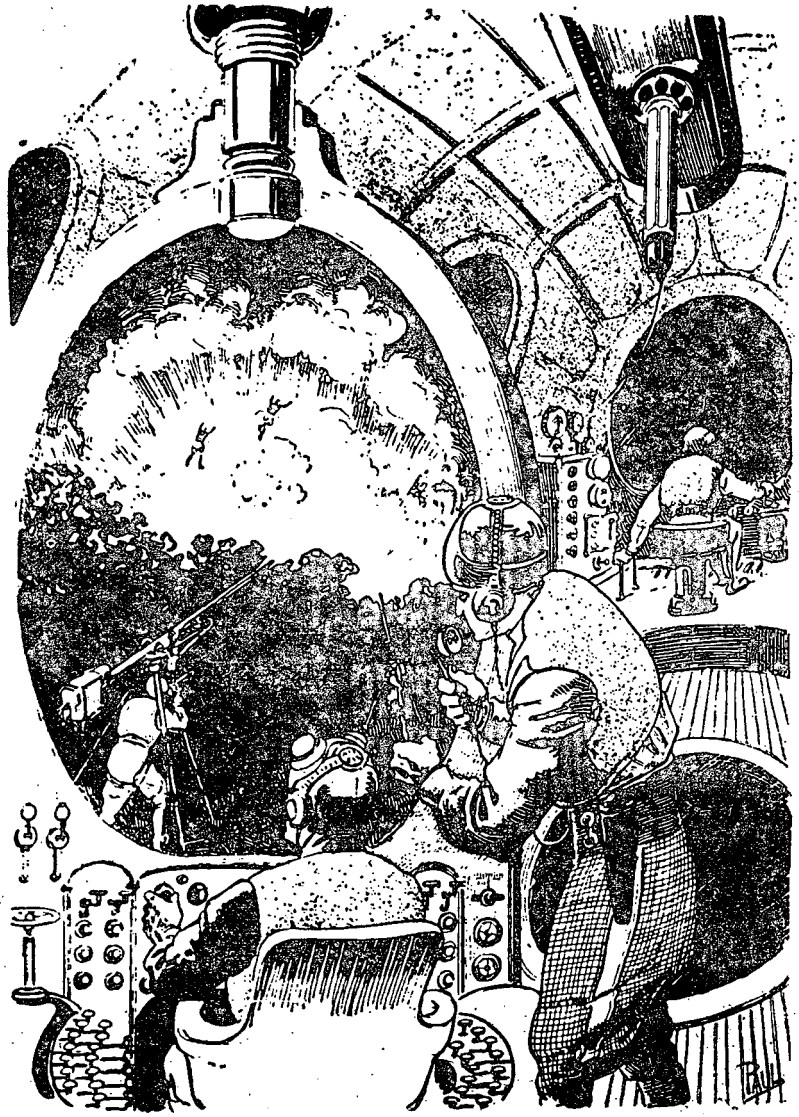
Few people, either in or out of science fiction, know that "Buck" Rogers was born in AMAZING STORIES. *Fewer still are aware that the first artist to cartoon the famous future Americans and soldiers of Han was Frank R. Paul. Breaking its policy* AMAZING STORIES *ran, in addition to two full-size illustrations, three cartoon panels which may even have given Nowlan the idea of submitting the entire package to a comic strip syndicate.*

When "Buck Rogers in the Twenty Fifth Century" appeared as a comic strip in the daily newspapers in 1929 it created a sensation and added a new phrase to the language. Phil Nowlan wrote the continuity about the famous characters of Buck Rogers, Wilma Deering, Dr. Huer, and Killer Kane, along with their disintegrators, jumping belts, inertron, and paralysis rays, and made them familiar to millions of people in this country and abroad. The daily adventures on radio thrilled many more. The popularity of the strip began to decline in the late thirties under the competition of Flash Gordon, Brick Bradford and other imitators. When Phil Nowlan severed his connection with the strip there was a steady loss of readership. Today, though the strip still appears in some papers, few people are aware it still exists. When Nowlan left the strip in 1939 he resumed his writing of magazine science fiction; but he died in early 1940.

"Buck Rogers" is a synonym

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Seen upon the ultroscope view plate, the battle looked as though it were being fought in daylight, perhaps on a cloudy day, while the explosions of the rockets appeared as flashes of extra brilliance.

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for the world of tomorrow, future invention and the spirit of science fiction. In past years the phrase "that Buck Rogers stuff" had a derisive ring to it, but more recently atom bombs and earth satellites have changed all that.

The strangest part about this entire story is that the original Buck Rogers' stories in AMAZING STORIES *were in no sense juveniles. They were serious, adult works based on the most plausible science of the time. They have an aura of accurate prophecy about them that cannot be erased. "Armageddon—2419" precisely described the bazooka, the jet plane, walkie-talkie for warfare, the infra-red ray gun for fighting at night, as well as dozens of other advances that are not here yet but are on their way.*

The perceptive Hugo Gernsback, then editor and publisher of AMAZING *called his shots as accurately on the quality of his stories as he did on future invention. Of "Armageddon—2419" he said: "We have rarely printed a story in this magazine that for scientific interest as well as suspense could hold its own with this particular story. We prophesy that this story will become more valuable as the years go by. It certainly holds a number of interesting prophecies, many of which, no doubt, will come true. For wealth of science it will be hard to beat for some time to come. It is one of those rare stories that will bear reading and re-reading many times."*

ELSEWHERE I have set down, for whatever interest they have in this, the 25th Century, my personal recollections of the 20th Century.

Now it occurs to me that my memoirs of the 25th Century may have an equal interest 500 years from now—particularly in view of that unique perspective from which I have seen the 25th Century, entering it as I did, in one leap across a gap of 492 years.

This statement requires elucidation. There are still many in the world who are not familiar with my unique experience. Five centuries from now there may be many more, expecially if civilization is fated to endure any worse convulsions than those which have occurred between 1975 A.D. and the present time.

I should state therefore, that I, Anthony Rogers, am, so far as I know, the only man alive whose normal span of eighty-one years of life has been spread over a period of 573 years. To be pre-

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cise, I lived the first twenty-nine years of my life between 1898 and 1927; the other fifty-two since 2419. The gap between these two, a period of nearly five hundred years, I spent in a state from the ravages of katabolic processes, and without any apparent effect on my physical or mental faculties.

When I began my long sleep, man had just begun his real conquest of the air in a sudden series of trans-oceanic flights in airplanes driven by internal combustion motors. He had barely begun to speculate on the possibilities of harnessing sub-atomic forces, and had made no further practical penetration into the field of ethereal pulsations than the primitive radio and television of that day. The United States of America was the most powerful nation in the world, its political, financial, industrial and scientific influence being supreme; and in the arts also it was rapidly climbing into leadership.

I awoke to find the America I knew a total wreck—to find Americans a hunted race in their own land, hiding in the dense forests that covered the shattered and leveled ruins of their once magnificent cities, desperately preserving, and struggling to develop in their secret retreats, the remnants of their culture and science—and the undying flame of their sturdy independence.

World domination was in the hands of Mongolians and the center of world power lay in inland China, with Americans one of the few races of mankind unsubdued—and it must be admitted in fairness to the truth, not worth the trouble of subduing in the eyes of the Han Airlords who ruled North America as titular tributaries of the Most Magnificent.

For they needed not the forests in which the Americans lived, nor the resources of the vast territories these forests covered. With the perfection to which they had reduced the synthetic production of necessities and luxuries, their remarkable development of scientific processes and mechanical accomplishment of work, they had no economic desire for the enslaved labor of an unruly race.

They had all they needed for their magnificently luxurious and degraded scheme of civilization within the walls of the fifteen cities of sparkling glass they had flung skyward on the sites of ancient American centers, into the bowels of the earth underneath them, and with relatively small surrounding areas of agriculture.

Complete domination of the air rendered communication between these centers a matter of ease and safety. Occasional destructive raids on the waste

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lands were considered all that was necessary to keep the "wild" Americans on the run within the shelter of their forests, and prevent their becoming a menace to the Han civilization.

But nearly three hundred years of easily maintained security, the last century of which had been nearly sterile in scientific, social and economic progress, had softened and devitalized the Hans.

It had likewise developed, beneath the protecting foliage of the forest, the growth of a vigorous new American civilization, remarkable in the mobility and flexibility of its organization, in its conquest of almost insuperable obstacles, in the development and guarding of its industrial and scientific resources, all in anticipation of that "Day of Hope" to which it had been looking forward for generations, when it would be strong enough to burst from the green chrysalis of the forests, soar into the upper air lanes and destroy the yellow incubus.

At the time I awoke, the "Day of Hope" was almost at hand. I shall not attempt to set forth a detailed history of the Second War of Independence, for that has been recorded already by better historians that I am. Instead I shall confine myself largely to the part I was fortunate enough to play in this struggle and in the events leading up to it.

It all resulted from my interest in radioactive gases. During the latter part of 1927 my company, the American Radioactive Gas Corporation, had been keeping me busy investigating reports of unusual phenomena observed in certain abandoned coal mines near the Wyoming Valley, in Pennsylvania.

With two assistants and a complete equipment of scientific instruments, I began the exploration of a deserted working in a mountainous district, where several weeks before, a number of mining engineers had reported traces of carnotite* and what they believed to be radioactive gases. Their report was not without foundation, it was apparent from the outset, for in our examination of the upper levels of the mine, our instruments indicated a vigorous radioactivity.

On the morning of December 15th, we descended to one of the lowest levels. To our surprise, we found no water there. Obviously it had drained off through some break in the strata. We noticed too that the rock in the side walls of the shaft was soft, evidently due to the radioactivity, and pieces crumbled under foot rather easily. We made our way cautiously down the shaft, when

** A hydrovanadate of uranium, and other metals; used as a source of radium compounds.*

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suddenly the rotted timbers above us gave way.

I jumped ahead, barely escaping the avalanche of coal and soft rock, but my companions, who were several paces behind me, were buried under it, and undoubtedly met instant death.

I was trapped. Return was impossible. With my electric torch I explored the shaft to its end, but could find no other way out. The air became increasingly difficult to breathe, probably from the rapid accumulation of the radioactive gas. In a little while my senses reeled and I lost consciousness.

When I awoke, there was a cool and refreshing circulation of air in the shaft. I had no thought that I had been unconscious more than a few hours, although it seems that the radioactive gas had kept me in a state of suspended animation for something like 500 years. My awakening, I figured out later, had been due to some shifting of the strata which reopened the shaft and cleared the atmosphere in the working. This must have been the case, for I was able to struggle back up the shaft over a pile of debris, and stagger up the long incline to the mouth of the mine, where an entirely different world, overgrown with a vast forest and no visible sign of human habitation, met my eyes.

I shall pass over the days of mental agony that followed in my attempt to grasp the meaning of it all. There were times when I felt that I was on the verge of insanity. I roamed the unfamiilar forest like a lost soul. Had it not been for the necessity of improvising traps and crude clubs with which to slay my food, I believe I should have gone mad.

Suffice it to say, however, that I survived this psychic crisis. I shall begin my narrative proper with my first contact with Americans of the year 2419 A.D.

Floating Men

MY FIRST glimpse of a human being of the 25th Century was obtained through a portion of woodland where the trees were thinly scattered with a dense forest beyond.

I had been wandering along aimlessly, and hopelessly, musing over my strange fate, when I noticed a figure that cautiously backed out of the dense growth across the glade. I was about to call out joyfully, but there was something furtive about the figure that prevented me. The boy's attention (for it seemed to be a lad of fifeen or sixeen) was centered tensely on the heavy growth of trees from which he had just emerged.

He was clad in rather tight-fitting garments entirely of

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green, and wore a helmet-like cap of the same color. High around his waist he wore a broad thick belt, which bulked up in the back across the shoulders, into something of the proportions of a knapsack.

As I was taking in these details, there came a vivid flash and heavy detonation, like that of a hand grenade, not far to the left of him. He threw up an arm and staggered a bit in a queer, gliding way; then he recovered himself and slipped cautiously away from the place of the explosion, crouching slightly, and still facing the denser part of the forest. Every few steps he would raise his arm, and point into the forest with something he held in his hand. Wherever he pointed there was a terrific explosion, deeper in among the trees. It came to me then that he was shooting with some form of pistol, though there was neither flash nor detonation from the muzzle of the weapon.

After firing several times, he seemed to come to a sudden resolution, and turning in my general direction, leaped—to my amazement sailing through the air between the sparsely scattered trees in such a jump as I had never in my life seen before. That leap must have carried him a full fifty feet, although at the height of his arc, he was not more than ten or twelve feet from the ground.

When he alighted, his foot caught in a projecting root, and he sprawled gently forward. I say "gently" for he did not crash down as I expected him to do. The only thing I could compare it with was a slow-motion cinema, although I had never seen one in which horizontal motions were registered at normal speed and only the verticle movements were slowed down.

Due to my surprise, I suppose my brain did not function with its normal quickness, for I gazed at the prone figure for several seconds before I saw the blood that oozed out from under the tight green cap. Regaining my power of action, I dragged him out of sight back of a big tree. The wound was not a deep one. My companion was more dazed than hurt. But what of the pursuers?

I took the weapon from his grasp and examined it hurriedly. It was not unlike the automatic pistol to which I was accustomed, except that it apparently fired with a button instead of a trigger I inserted several fresh rounds of amunition into its magazine from my companions belt, as rapidly as I could, for I soon heard near us, the suppressed conversation of his pursuers.

There followed a series of explosions round about us, but none very close. They evidently had not

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spotted our hiding place, and were firing at random.

I waited tensely, balancing the gun in my hand, to accustom myself to its weight and probable throw.

Then I saw a movement in the green foliage of a tree not far away, and the head and face of a man appeared. Like my companion, he was clad entirely in green, which made his figure difficult to distinguish. But his face could be seen clearly. It was an evil face, and had murder in it.

That decided me. I raised the gun and fired. My aim was bad, for there was no kick in the gun, as I had expected, and I hit the trunk of the tree several feet below him. It blew him from his perch like a crumpled bit of paper, and he floated down to the ground, like some limp, dead thing, gently lowered by an invisible hand. The tree, its trunk blown apart by the explosion, crashed down.

There followed another series of explosions around us. These guns we were using made no sound in the firing, and my opponents were evidently as much at sea as to my position as I was to theirs. So I made no attempt to reply to their fire, contenting myself with keeping a sharp lookout in their general direction. And patience had its reward.

Very soon I saw a cautious movement in the top of another tree. Exposing myself as little as possible, I aimed carefully at the tree trunk and fired again. A shriek followed the explosion. I heard the tree crash down; then a groan.

There was silence for awhile. Then I heard a faint sound of boughs swishing. I shot three times in its direction, pressing the button as rapidly as I could. Branches crashed down where my shells had exploded, but there was no body.

Then I saw one of them. He was starting one of those amazing leaps from the bough of one tree to another, about forty feet away.

I threw up my gun impulsively and fired. By now I had gotten the feel of the weapon, and my aim was good. I hit him. The "bullet" must have penetrated his body and exploded. For one moment I saw him flying through the air. Then the explosion, and he had vanished. He never finished his leap. It was annihilation.

How many more of them there were I don't know. But this must have been too much for them. They used a final round of shells on us, all of which exploded harmlessly, and shortly after I heard them swishing and crashing away from us through the tree tops. Not one of them descended to earth.

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Now I had time to give some attention to my companion. She was, I found, a girl, and not a boy. Despite her bulky appearance, due to the peculiar belt strapped around her body high up under the arms, she was very slender, and very pretty.

There was a stream not far away, from which I brought water and bathed her face and wound.

Apparently the mystery of these long leaps, the monkey-like ability to jump from bough to bough, and of the bodies that floated gently down instead of falling lay in that belt. The thing was some sort of antigravity belt that almost balanced the weight of the wearer, thereby tremendously multiplying the propulsive power of the leg muscles, and the lifting power of the arms.

When the girl came to, she regarded me as curiously as I did her, and promptly began to quiz me. Her accent and intonation puzzled me a lot, but nevertheless we were able to understand each other fairly well, except for certain words and phrases. I explained what had happened while she lay unconscious, and she thanked me simply for saving her life.

"You are a strange exchange," she said, eying my clothing quizzically. Evidently she found it mirth provoking by contrast with her own neatly efficient garb. "Don't you understand what I mean by 'exchange?' I mean ah—let me see—a stranger, somebody from some other gang. What gang do you belong to?" (She pronounced it "gan," with only a suspicion of a nasal sound.)

I laughed. "I'm not a gangster," I said. But she evidently did not understand this word. "I don't belong to any gang," I explained, "and never did. Does everybody belong to a gang nowadays?"

"Naturally," she said, frowning. "If you don't belong to a gang, where and how do you live? Why have you not found and joined a gang? How do you eat? Where do you get your clothing?"

"I've been eating wild game for the past two weeks," I explained, "and this clothing I—er—ah—." I paused, wondering how I could explain that it must be many hundred years old.

In the end I saw I would have to tell my story as well as I could, piecing it together with my assumptions as to what had happened. She listened patiently; incredulously at first, but with more confidence as I went on. When I had finished, she sat thinking for a long time.

"That's hard to believe," she said, "but I believe it." She

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looked me over with frank interest.

"Were you married when you slipped into unconsciousness down in that mine?" she asked me suddenly. I assured her I had never married. "Well, that simplifies matters," she continued. "You see, if you were technically classed as a family man, I could take you back only as an invited exchange and I, being unmarried, and no relation of yours, couldn't do the inviting.

The Forest Gangs

SHE gave me a brief outline of the very peculiar social and economic system under which her people lived. At least it seemed very peculiar from my 20th Century viewpoint.

I learned with amazement that exactly 492 years had passed over my head as I lay unconscious in the mine.

Wilma, for that was her name, did not profess to be a historian, and so could give me only a sketchy outline of the wars that had been fought, and the manner in which such radical changes had come about. It seemed that another war had followed the First World War, in which nearly all the European nations had banded together to break the financial and industrial power of America. They succeeded in their purpose, though they were beaten, for the war was a terrific one, and left America, like themselves, gasping, bleeding and disorganized, with only the hollow shell of a victory.

This opportunity had been seized by the Russian Soviets, who had made a coalition with the Chinese, to sweep over all Europe and reduce it to a state of chaos.

America, industrially geared to world production and the world trade, collapsed economically, and there ensued a long period of stagnation and desperate attempts at economic reconstruction. But it was impossible to stave off war with the Mongolians, who by now had subjugated the Russians, and were aiming at a world empire.

In about 2109, it seems, the conflict was finally precipitated. The Mongolians, with overwhelming fleets of great airships, and a science that far outstripped that of crippled America, swept in over the Pacific and Atlantic Coasts, and down from Canada, annihilating American aircraft, armies and cities with their terrific *disintegrator* rays. These rays were projected from a machine not unlike a searchlight in appearance, the reflector of which, however, was not material substance, but a complicated balance of interacting electronic forces. This resulted in a terribly destructive beam. Under its

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influence, material substance melted into "nothingness"; i.e., into electronic vibrations. It destroyed all then known substances, from air to the most dense metals and stone.

They settled down to the establishment of what became known as the Han dynasty in America, as a sort of province in their world empire.

Those were terrible days for the Americans. They were hunted like wild beasts. Only those survived who finally found refuge in mountains, canyons and forests. Government was at an end among them. Anarchy prevailed for several generations. Most would have been eager to submit to the Hans, even if it meant slavery. But the Hans did not want them, for they themselves had marvelous machinery and scientific process by which all difficult labor was accomplished.

Ultimately they stopped their active search for, and annihilation of the widely scattered groups of now savage Americans. So long as they remained hidden in their forests, and did not venture near the great cities the Hans had built, little attention was paid to them.

Then began the building of the new American civilization. Families and individuals gathered together in clans or "gangs" for mutual protection. For nearly a century they lived a nomadic and primitive life, moving from place to place, in desperate fear of the casual and occasional Hans air raids, and the terrible disintegrator ray. As the frequency of these raids decreased, they began to stay permanently in given localities, organizing upon lines which in many respects were similar to those of the military households of the Norman feudal barons, except that instead of gathering together in castles, their defense tactics necessitated a certain scattering of living quarters for families and individuals. They lived virtually in the open air, in the forests, in green tents, resorting to camouflage tactics that would conceal their presence from air observers. They dug underground factories and laboratories, that they might better be shielded from the electrical detectors of the Hans. They tapped the radio communication lines of the Hans, with crude instruments at first; better ones later on. They bent every effort toward the redevelopment of science. For many generations they labored as unseen, unknown scholars of the Hans, picking up their knowledge piecemeal, as fast as they were able to.

During the earlier part of this period, there were many deadly wars fought between the various

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gangs, and occasional courageous but childishly futile attacks upon the Hans, followed by terribly punitive raids.

But as knowledge progressed, the sense of American brotherhood redeveloped. Reciprocal arrangements were made among the gangs over constantly increasing areas. Trade developed to a certain extent, as between one gang and another. But the interchange of knowledge became more important than that of goods, as skill in the handling of synthetic processes developed.

Within the gang, an economy was developed that was a compromise between individual liberty and a military socialism. The right of private property was limited practically to personal possessions, but private privileges were many, and sacredly regarded. Stimulation to achievement lay chiefly in the winning of various kinds of leadership and prerogatives, and only in a very limited degree in the hope of owning anything that might be classified as "wealth," and nothing that might be classified as "resources." Resources of every description, for military safety and efficiency, belonged as a matter of public interest to the community as a whole.

In the meantime, through these many generations, the Hans had developed a luxury economy, and with it the perfection of gilded vice and degradation. The Americans were regarded as "wild men of the woods." And since they neither needed nor wanted the woods or the wild men, they treated them as, beasts and were conscious of no human brotherhood with them. As time went on, and synthetic processes of producing foods and materials were further developed, less and less ground was needed by the Hans for the purposes of agriculture, and finally, even the working of mines was abandoned when it became cheaper to build up metal from electronic vibrations than to dig them out of the ground.

The Hans race, devitalized by its vices and luxuries, with machinery and scientific processes to satisfy its every want, with virtually no necessity to labor, began then to assume a defensive attitude toward the Americans.

And quite naturally, the Americans regarded the Hans with a deep, grim hatred. Conscious of individual superiority as men, knowing that latterly they were outstripping the Hans in science and civilization, they longed desperately for the day when they should be powerful enough to rise and annihilate the Yellow Blight that lay over the continent.

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AT the time of my awakening, the gangs were rather loosely organized, but were considering the establishment of a special military force, whose special business it would be to harry the Hans and bring down their air ships whenever possible without causing general alarm among the Mongolians. This force was destined to become the nucleus of the national force, when the Day of Retribution arrived. But that, however, did not happen for ten years, and is another story.

Wilma told me she was a member of the Wyoming Gang, which claimed the entire Wyoming Valley as its territory, under the leadership of Boss Hart. Her mother and father were dead, and she was unmarried, so she was not a "family member." She lived in a little group of tents known as Camp 17, under a woman Camp Boss, with seven other girls.

Her duties alternated between military or police scouting and factory work. For the two-week period which would end the next day, she had been on "air patrol." This did not mean, as I first imagined, that she was flying, but rather that she was on the lookout for Hans ships over this outlying section of the Wyoming territory, and had spent most of her time perched in the tree tops scanning the skies. Had she seen one she would have fired a "drop flare" several miles off to one side, which would ignite when it was floating vertically toward the earth, so that the direction or point from which it had been fired might not be guessed by the airship and bring a blasting play of the disintegrator ray in her vicinity. Other members of the air patrol would send up rockets on seeing hers, until finally a scout equipped with an ultrophone, which, unlike the ancient radio, operated on the ultronic ethereal vibrations, would pass the warning simultaneously to the headquarters of the Wyoming Gang and other communities with a radius of several hundred miles, not to mention the few American rocketships that might be in the air, and which instantly would duck to cover either through forest clearings or by flattening down to earth in green fields where their coloring would probably protect them from observation. The favorite American method of propulsion was known as *"rocketing."* The *rocket* is what I would describe, from my 20th Century comprehension of the matter, as an extremely powerful gas blast, atomically produced through the stimulation of chemical action. Scientists of today regard it as a childishly simple reaction, but by that very virtue, most economical and efficient.

But tomorrow, she explained,

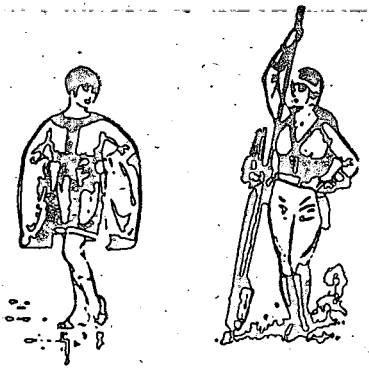
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she would go back to work in the cloth plant, where she would take charge of one of the synthetic processes by which those wonderful substitutes for woven fabrics of wool, cotton and silk are produced. At the end of another two weeks, she would be back on military duty again, perhaps at the same work, or maybe as a "contact guard," on duty where the territory of the Wyomings merged with that of the Delawares, or the "Susquannas" (Susquehannas) or one of the half dozen other "gangs" in that section of the country which I knew as Pennsylvania and New York States.

Wilma cleared up for me the mystery of those flying leaps which she and her assailants had made, and explained in the following manner, how the inertron belt balances weight:

"Jumpers" were in common use at the time I "awoke," though they were costly, for at that time *inertron* had not been produced in very great quantity. They were very useful in the forest. They were belts, strapped high under the arms, containing an amount of inertron adjusted to the wearer's weight and purposes. In effect they made a man weigh as little as he desired; two pounds if he liked.

"Floaters" are a later development of *"jumpers"*—rocket motors encased in *inertron* blocks and strapped to the back in such a way that the wearer floats, when drifting, facing slightly downward. With his motor in operation, he moves like a diver, head-foremost, controlling his direction by twisting his body and by movements of his outstretched arms and hands. Ballast weights locked in the front of the belt adjust weight



On the left a Han girl; on the right an American girl, who is equipped with an inertron belt and rocket gun.

and lift. Some men prefer a few ounces of weight in floating, using a slight motor thrust to overcome this. Others prefer a buoyance balance of a few ounces. The inadvertent dropping of weight is not a serious matter. The motor thrust always can be used to descend. But as an extra precaution, in case the motor should fail, for any reason, there are built into every belt a num-

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ber of detachable sections, one or more of which can be discarded to balance off any loss in weight.

"But who were your assailants," I asked, "and why were you attacked?"

Her assailants, she told me, were members of an outlaw gang, referred to as "Bad Bloods," a group which for several generations had been under the domination of conscienceless leaders who tried to advance the interests of their clan by tactics which their neighbors had come to regard as unfair, and who in consequence had been virtually boycotted. Their purpose had been to slay her near the Delaware frontier, making it appear that the crime had been committed by Delaware scouts and thus embroil the Delawares and Wyomings in acts of reprisal against each other, or at least cause suspicions.

Fortunately they had not succeeded in surprising her, and she had been successful in dodging them for some two hours before the shooting began, at the moment when I arrived on the scene.

"But we must not stay here talking," Wilma concluded. "I have to take you in, and besides I must report this attack right away. I think we had better slip over to the other side of the mountain. Whoever is on that post will have a phone, and I can make a direct report. But you'll have to have a belt. Mine alone won't help much against our combined weights, and there's little to be gained by jumping heavy. It's almost as bad as walking."

After a little search, we found one of the men I had killed, who had floated down among the trees some distance away and whose belt was not badly damaged. In detaching it from his body, it nearly got away from me and shot up in the air. Wilma caught it, however, and though it reinforced the lift of her own belt so that she had to hook her knee around a branch to hold herself down, she saved it. I climbed the tree, and with my weight added to hers, we floated down easily.

Life in the 25th Century

WE were delayed in starting for quite awhile since I had to acquire a few crude ideas about the technique of using these belts. I had been sitting down, for instance, with the belt strapped about me, enjoying an ease similar to that of a comfortable armchair; when I stood up with a natural exertion of muscular effort, I shot ten feet into the air, with a wild instinctive thrashing of arms and legs that amused Wilma greatly.

But after some practice, I began to get the trick of gauging

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muscular effort to a minimum of vertical and a maximum of horizontal. The correct form, I found, was in a measure comparable to that of skating. I found, also, that in forest work particularly the arms and hands could be used to great advantage in swinging along from branch to branch, so prolonging leaps almost indefinitely at times.

In going up the side of the mountain, I found that my 20th Century muscles did have an advantage, in spite of lack of skill with the belt, and since the slopes were very sharp, and most of our leaps were upward, I could have distanced Wilma easily. But when we crossed the ridge and descended, she outstripped me with her superior technique. Choosing the steepest slopes, she would crouch in the top of a tree, and propel herself outward, literally diving until, with the loss of horizontal momentum, she would assume a more upright position and float downward. In this manner she would sometimes cover as much as a quarter of a mile in a single leap, while I leaped and scrambled clumsily behind, thoroughly enjoying the novel sensation.

Half way down the mountain, we saw another green-clad figure leap out above the tree tops toward us. The three of us perched on an outcropping of rock from which a view for many miles around could be had, while Wilma hastily explained her adventure and my presence to her fellow guard, whose name was Alan. I learned later that this was the modern form of Helen.

"You want to report by phone then, don't you?" Alan took a compact packet about six inches square from a holster attached to her belt and handed it to Wilma.

So far as I could see, it had no special receiver for the ear. Wilma merely threw back a lid, as though she were opening a book, and began to talk. The voice that came back from the machine was as audible as her own.

She was queried closely as to the attack upon her, and at considerable length as to myself, and I could tell from the tone of that voice that its owner was not prepared to take me at my face value as readily as Wilma had. For that matter, neither was the other girl. I could realize it from the suspicious glances she threw my way, when she thought my attention was elsewhere, and the manner in which her hand hovered constantly near her gun holster.

Wilma was ordered to bring me in at once, and informed that another scout would take her place on the other side of the mountain. So she closed down the lid of the phone and handed it back to Alan, who seemed re-

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lieved to see us departing over the tree tops in the direction of the camps.

We had covered perhaps ten miles, in what still seemed to me a surprisingly easy fashion, when Wilma explained that from here on we would have to keep to the ground. We were nearing the camps, she said, and there was always the possibility that some small Han scoutship, invisible high in the sky, might catch sight of us through a projectoscope and thus find the general location of the camps.

Wilma took me to the Scout office, which proved to be a small building of irregular shape, conforming to the trees around it, and substantially constructed of green sheet like material.

I was received by the assistant Scout Boss, who reported my arrival at once to the historical office, and to officials he called the Psycho Boss and the History Boss, who came in a few minutes later. The attitude of all three men was at first polite but skeptical, and Wilma's ardent advocacy seemed to amuse them secretly.

For the next two hours I talked, explained and answered questions. I had to explain, in detail, the manner of my life in the 20th Century and my understanding of customs, habits, business, science and the history of that period, and about developments in the centuries that had elapsed. Had I been in a classroom, I would have come through the examination with a very poor mark, for I was unable to give any answer to fully half of their questions. But before long I realized that the majority of these questions were designed as traps. Objects, of whose purpose I knew nothing, were casually handed to me, and I was watched keenly as I handled them.

In the end I could see both amazement and belief begin to show in the faces of my inquisitors, and at last the Historical and Psycho Bosses agreed openly that they could find no flaw in my story or reactions, and that unbelievable as it seemed, my story must be accepted as genuine.

They took me at once to Big Boss Hart. He was a portly man with a "poker face." He would probably have been the successful politician even in the 20th Century.

They gave him a brief outline of my story and a report of their examination of me. He made no comment other than to nod his acceptance of it. Then he turned to me.

"How does it feel?" he asked. "Do we look funny to you?"

"A bit strange," I admitted. "But I'm beginning to lose that dazed feeling, though I can see

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I have an awful lot to learn."

"Maybe we can learn some things from you, too," he said. "So you fought in the First World War. Do you know, we have very little left in the way of records of the details of that war, that is, the precise conditions under which it was fought, and the tactics employed. We forgot many things during the Han terror, and—well, I think you might have a lot of ideas worth thinking over for our raid masters. By the way, now that you're here, and can't go back to your own century, so to speak, what do you want to do? You're welcome to become one of us. Or perhaps you'd just like to visit with us for awhile, and then look around among other gangs. Maybe you'd like some of the others better. Don't make up your mind now. We'll put you down as an exchange for awhile. Let's see. You and Bill Hearn ought to get along well together. He's Camp Boss of Number 34 when he isn't acting as Raid Boss or Scout Boss. There's a vacancy in his camp. Stay with him and think things over as long as you want to. As soon as you make up your mind to anything, let me know."

We all shook hands, for that was one custom that had not died out in five hundred years, and I set out with Bill Hearn.

Bill, like all the others, was clad in green. He was a big man. That is, he was about my own height, five feet eleven. This was considerably above the average now, for the race had lost something in stature, it seemed, through the vicissitudes of five centuries. Most of the women were a bit below five feet, and the men only a trifle above this height.

FOR a period of two weeks Bill was to confine himself to camp duties, so I had a good chance to familiarize myself with the community life. It was not easy. There were so many marvels to absorb. I never ceased to wonder at the strange combination of rustic social life and feverish industrial activity. At least, it was strange to me. For in my experience, industrial development meant crowded cities, tenements, paved streets, profusion of vehicles, noise, hurrying men and women with strained or dull faces, vast structures and ornate public works.

Here, however, was rustic simplicity, apparently isolated families and groups, living in the heart of the forest, with a quarter of a mile or more between households, a total absence of crowds, no means of conveyance other than the belts called jumpers, almost constantly worn by everybody, and an occasional rocket ship, used only for longer

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journeys, and underground plants or factories that were to my mind more like laboratories and engine rooms; many of them were excavations as deep as mines, with well finished, lighted and comfortable interiors. These people were adepts at camouflage against air observations. Not only would their activity have been unsuspected by an airship passing over the center of the community, but even by an enemy who might happen to drop through the screen of the upper branches to the floor of the forest. The camps, or household structures, were all irregular in shape and of colors that blended with the great trees among which they were hidden.

There were 724 dwellings or "camps" among the Wyomings, located within an area of about fifteen square miles. The total population was 8,688, every man, woman and child, whether member or "exchange," being listed.

The plants were widely scattered through the territory also. Nowhere was anything like congestion permitted. So far as possible, families and individuals were assigned to living quarters, not too far from the plants or offices in which their work lay.

All able-bodied men and women alternated in two-week periods between military and industrial service, except those who were needed for household work. Since working conditions in the plants and offices were ideal, and everybody thus had plenty of healthy outdoor activity in addition, the population was sturdy and active. Laziness was regarded as nearly the greatest of social offences. Hard work and general merit were variously rewarded with extra privileges, advancement to positions of authority, and with various items of personal equipment for convenience and luxury.

In leisure moments, I got great enjoyment from sitting outside the dwelling in which I was quartered with Bill Hearn and ten other men, watching the occasional passers-by, as with leisurely, but swift movements, they swung up and down the forest trail, rising from the ground in long almost-horizontal leaps, occasionally swinging from one convenient branch overhead to another before "sliding" back to the ground farther on. Normal traveling pace, where these trails were straight enough, was about twenty miles an hour. Such things as automobiles and railroad trains (the memory of them not more than a month old in my mind) seemed inexpressibly silly and futile compared with such convenience as these belts or jumpers offered.

Bill suggested that I wander around for several days, from plant to plant, to observe and

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study what I could. The entire community had been apprised of my coming, my rating as an "exchange" reaching every building and post in the community, by means of ultronic broadcast. Everywhere I was welcomed in an interested and helpful spirit.

I visited the plants where ultronic vibrations were isolated from the ether and through slow processes built up into sub-eletronic, electronic and atomic forms into the two great synthetic elements, ultron and inertron. I learned something, superficially at least, of the processes of combined chemical and mechanical action through which were produced the various forms of building materials. But I was particularly interested in the munitions plant and the rocket ship shops.

Ultron is a solid of great molecular density and moderate elasticity, which has the property of being 100 percent conductive to those pulsations known as light, electricity and heat. Since it is completely permeable to light vibrations, it is therefore *absolutely invisible and non-reflective.* Its magnetic response is almost, but not quite, 100 percent also. It is therefore very heavy under normal conditions but extremely responsive to the *repellor* or antigravity rays, such as the Hans use as *"legs"* for their airships.

"Inertron is the second great triumph of American research and experimentation with ultronic forces. It was developed just a few years before my awakening in the abandoned mine. It is a synthetic element, built up, through a complicated heterodyning of ultronic pulsations, from "infra balanced" subionic forms. It is completely inert to both electric and magnetic forces in all the order above the *ultronic;* that is to say, the *sub-electronic,* the *electronic,* the *atomic* and the *molecular.* In consequence it has a number of amazing and valuable properties. One of these is *the total lack of weight.* Another is a total lack of heat. It has no molecular vibration whatever. It reflects 100 percent of the heat and light impinging upon it. It does not feel cold to the touch, of course, since it will not absorb the heat of the hand. It is a solid, very dense in molecular structure despite its lack of weight, of great strength and considerable elasticity. It is a perfect shield against the disintegrator rays.

Rocket guns are very simple contrivances so far as the mechanism of launching the bullet is concerned. They are simple light tubes, closed at the rear end, with a trigger actuated pin for piercing the thin skin at the base of the cartridge. This piercing of the skin starts the chemical and

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atomic reaction. The entire cartridge leaves the tube under its own power, at a very easy initial velocity, just enough to insure accuracy of aim; so the tube does not have to be of heavy construction. The bullet increases in velocity as it goes. It may explode on contact or on time, or a combination of these two.

Bill and I talked mostly of weapons, military tactics and strategy. Strangely enough he had no idea whatever of the possibilities of the barrage, though the tremendous effect of a "curtain of fire" with such high-explosive projectiles as these modern rocket guns used was obvious to me. But the barrage idea, it seemed, has been lost track of completely in the air wars that followed the First World War, and in the peculiar guerilla tactics developed by Americans in the later period of operations from the ground against Hans airships, and in the gang wars which until a few generations ago I learned, had been almost continuous.

"I wonder," said Bill one day, "if we couldn't work up some form of barrage to spring on the Bad Bloods. The Big Boss told me today that he's been in communication with the other gangs, and all are agreed that the Bad Bloods might as well be wiped out for good. That attempt on Wilma Deering's life and their evident desire to make trouble among the gangs, has stirred up every community east of the Alleghanies. The Boss says that none of the others will object if we go after them. So I imagine that before long we will. Now show me again how you worked that business in the Argonne forest. The conditions ought to be pretty much the same.

I went over it with him in detail, and gradually we worked out a modified plan that would be better adapted to our more powerful weapons, and the use of jumpers.

"It will be easy," Bill exulted. "I'll slide down and talk it over with the Boss tomorrow."

During the first two weeks of my stay with the Wyomings, Wima Deering and I saw a great deal of each other. I naturally felt a little closer friendship for her, in view of the fact that she was the first human being I saw after waking from my long sleep; her appreciation of my saving her life, though I could not have done otherwise than I did in that matter, and most of all my own appreciation of the fact that she had not found it as difficult as the others to believe my story, operated in the same direction. I could easily imagine my story must have sounded incredible.

It was natural enough too, that she should feel an unusual interest in me. In the first place, I

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was her personal discovery. In the second, she was a girl of studious and reflective turn of mind. She never got tired of my stories and descriptions of the 20th Century.

The others of the community, however, seemed to find our friendship a bit amusing. It seemed that Wilma had a reputation for being cold toward the opposite sex, and so others, not being able to appreciate some of her fine qualities as I did, misinterpreted her attitude, much to their delight. Wilma and I, however, ignored this as much as we could.

A Han Air Raid

THERE was a girl in Wilma's camp named Gerdi Mann, with whom Bill Hearn was desperately in love, and the four of us used to go around a lot together. Gerdi was a distinct type. Whereas Wilma had the usual dark brown hair and hazel eyes that marked nearly every member of the community, Gerdi had red hair, blue eyes and very fair skin. She has been dead many years now, but I remember her vividly because she was a throwback in physical appearance to a certain 20th Century type which I have found rare among modern Americans; also because the four of us were engaged one day in a discussion of this very point, when I obtained my first experience of a Han air raid.

We were sitting high on the side of a hill overlooking the valley that teemed with human activity, invisible beneath its blanket of foliage.

The other three, who knew of the Irish but vaguely and indefinitely, as a race on the other side of the globe, which, like ourselves, had succeeded in maintaining a precarious and fugitive existence in rebellion against the Mongolian domination of the earth, were listening with interest to my theory that Gerdi's ancestors of several hundred years ago must have been Irish. I explained that Gerdi was an Irish type, evidently a throwback, and that her surname might well have been McMann, or McMahan, and still more anciently "mac Mathghamhain." They were interested too in my surmise that "Gerdi" was the same name as that which had been "Gerty" or "Gertrude" in the 20th Century.

In the middle of our discussion, we were startled by an alarm rocket that burst high in the air, far to the north, spreading a pall of red smoke that drifted like a cloud. It was followed by others at scattered points in the Northern sky.

"A Han raid!" Bill exclaimed in amazement. "The first in seven years!"

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"Maybe it's just one of their ships off its course," I ventured.

"No" said Wilma in some agitation. "That would be green rockets. Red means only one thing, Tony. They're sweeping the countryside with their dis beams. Can you see anything, Bill?"

"We had better get under cover," Gerdi said nervously. "The four of us are bunched here in the open. For all we know they may be twelve miles up, out of sight, yet looking at us with a projecto'."

Bill had been sweeping the horizon hastily with his glass, but apparently saw nothing.

"We had better scatter, at that," he said finally. "It's orders, you know. See!" He pointed to the valley.

Here and there a tiny human figure shot for a moment above the foliage of the treetops.

"That's bad," Wilma commented, as she counted the jumpers. "No less than fifteen people visible, and all clearly radiating from a central point. Do they want to give away our location?"

The standard orders covering air raids were that the population was to scatter individually. There should be no grouping, or even pairing, in view of the destructiveness of the disintegrator rays. Experience of generations had proved that if this were done, and everybody remained hidden beneath the tree screens, the Hans would have to sweep mile after mile of territory, foot by foot, to catch more than a small percentage of the community.

Gerdi, however, refused to leave Bill, and Wilma developed an equal obstinacy against quitting my side. I was inexperienced at this sort of thing, she explained, quite ignoring the fact that she was too; she was only thirteen or fourteen years old at the time of the last air raid.

However, since I could not argue her out of it, we leaped together about a quarter of a mile to the right, while Bill and Gerdi disappeared down the hillside among the trees.

Wilma and I both wanted a point of vantage from which we might overlook the valley and the sky to the North, and we found it near the top of the ridge, where, protected from visibility by thick branches, we could look out betwen the tree trunks, and get a good view of the valley.

No more rockets went up. Except for a few of those warning red clouds, drifting lazily in a blue sky, there was no visible indication of man's past or present existence anywhere in the sky or on the ground.

Then Wilma gripped my arm and pointed. I saw it; away off in the distance; looking like a phantom dirigible airship, in its

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coat of low-visibility paint, a bare spectre.

"Seven thousand feet up," Wilma whispered, crouching close to me. "Watch."

The ship was about the same shape as the great dirigibles of the 20th Century that I had seen, but without the suspended control car, engines, propellors, rudders or elevating planes. As it loomed rapidly nearer, I saw that it was wider and somewhat flatter than I had supposed.

Now I could see the repellor rays that held the ship aloft, like searchlight beams faintly visible in the bright daylight (and still faintly visible to the human eye at night). Actually, I had been informed by my instructors, there were two rays; the visible one generated by the ship's apparatus, and directed toward the ground as a beam of "carrier" impulses; and the true repellor ray, the complement of the other in one sense, induced by the action of the "carrier" and reacting in a concentrating upward direction from the mass of the earth, becoming successively electronic, atomic and finally molecular, in its nature, according to various ratios of distance between earth mass and "carrier" source, until in the last analysis, the ship itself actually is supported on an upward rushing column of air, like a ball supported on a fountain jet.

The raider neared with incredible speed. Its rays were both slanted astern at a sharp angle, so that it slid forward with tremendous momentum.

The ship was operating two disintegrator rays, though only in a casual, intermittent fashion. But whenever they flashed downward with blinding brilliancy, forest, rocks and ground melted instantaneously into nothing, where they played upon them.

When later I inspected the scars left by these rays I found them some five feet deep and thirty feet wide, the exposed surfaces being lava-like in texture, but of a pale, iridescent, greenish hue.

No systematic use of the rays was made by the ship, however, until it reached a point over the center of the valley—the center of the community's activities. There it came to a sudden stop by shooting its repellor beams sharply forward and easing them back gradually to the vertical, holding the ship floating and motionless. Then the work of destruction began systematically.

Back and forth traveled the destroying rays, ploughing parallel furrows from hillside to hillside. We gasped in dismay, Wilma and I, as time after time we saw it plough through sec-

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tions where we knew camps or plants were located.

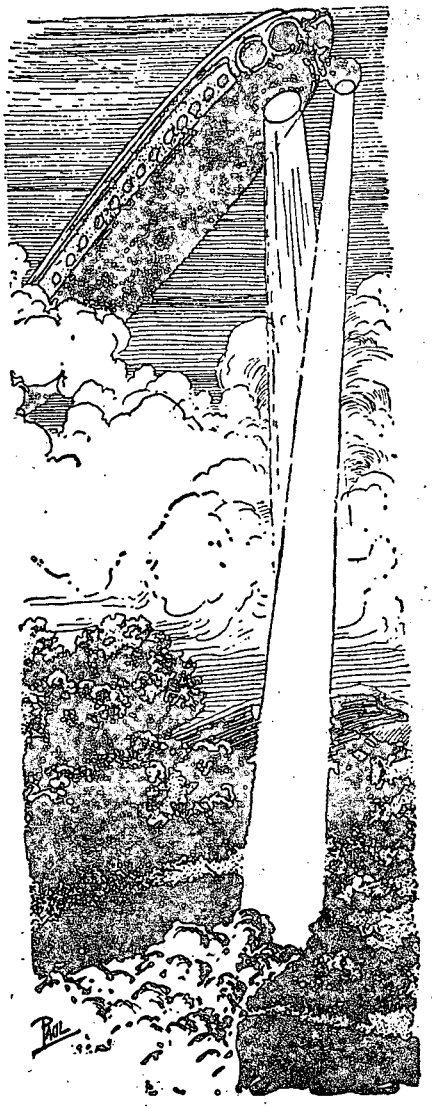
"This is awful" she moaned, a terrified question in her eyes. "How could they know the location so exactly, Tony? Did you see? They were never in doubt. They stalled at a predetermined spot—and—and it was exactly the right spot.

We did not talk of what might happen if the rays were turned in our direction. We both knew. We would simply disintegrate in a split second into mere scattered electronic vibrations. Strangely enough, it was this self-reliant girl of the 25th Century, who clung to me, a relatively primitive man of the 20th, less familiar than she with the thought of this terrifying possibility, for moral support.

We knew that many of our companions must have been whisked into absolute non-existence before our eyes in these few moments. The whole thing paralyzed us into mental and physical immobility for I do not know how long.

It couldn't have been long, however, for the rays had not ploughed more than thirty of their twenty-foot furrows or so across the valley, when I regained control of myself, and brought Wilma to herself by shaking her roughly.

"How far will this rocket gun shoot, Wilma?" I demanded.



"It depends on your rocket, Tony. It will take even the longest range rocket, but you could

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shoot more accurately from a longer tube. But why? You couldn't penetrate the shell of that ship with rocket force, even if you could reach it."

I fumbled clumsily with my rocket pouch, for I was excited. I had an idea I wanted to try; a "hunch" I called it, forgetting that Wilma could not understand my ancient slang. But finally, with her help, I selected the longest range explosive rocket in my pouch, and fitted it to my pistol.

"It won't carry seven thousand feet, Tony," Wilma objected. But I took aim carefully. It was another thought that I had in my mind. The supporting repellor ray, I had been told, became molecular in character at what was called a logarithmic level of five (below that it was a purely electronic "flow" or pulsation between the source of the "carrier" and the average mass of the earth). Below that level if I could project my explosive bullet into this stream where it began to carry material substance upward, might it not rise with the air column, gathering speed and hitting the ship with enough impact to carry it through the shell? It was worth trying anyhow. Wilma became greatly excited, too, when she grasped the nature of my inspiration.

Feverishly I looked around for some formation of branches against which I could rest the pistol, for I had to aim most carefully. At last I found one. Patiently I sighted on the hulk of the ship far above us, aiming at the far side of it, at such an angle as would, so far as I could estimate, bring my bullet path through the forward repellor beam. At last the sights wavered across the point I sought and I pressed the button gently.

For a moment we gazed breathlessly.

Suddenly the ship swung bow down, as on a pivot, and swayed like a pendulum. Wilma screamed in her excitement.

"Oh Tony, you hit it! You hit it! Do it again; bring it down."

We had only one more rocket of extreme range between us, and we dropped it three times in our excitement in inserting it in my gun. Then, forcing myself to be calm by sheer will power, while Wilma stuffed her little fist into her mouth to keep from shrieking, I sighted carefully again and fired. In a flash, Wilma had grasped the hope that this discovery of mine might lead to the end of the Han domination.

The elapsed time of the rocket's invisible flight seemed an age.

Then we saw the ship falling. It seemed to plunge lazily, but actually it fell with terrific acceleration, turning end over end,

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its disintegrator rays, out of control, describing vast, wild arcs, and once cutting a gash through the forest less than two hundred feet from where we stood.

The crash with which the heavy craft hit the ground reverberated from the hill—the momentum of eighteen or twenty thousand tons, in a sheer drop of seven thousand feet. A mangled mass of metal, it buried itself in the ground, with poetic justice, in the middle of the smoking, semi-molten field of destruction it had been so deliberately ploughing.

THE silence, the vacuity of the landscape, was oppressive, as the last echoes died away.

Then far down the hillside, a single figure leaped exultantly above the foliage screen. And in the distance another, and another.

In a moment the sky was punctured by signal rockets. One after another the little red puffs became drifting clouds.

"Scatter! Scatter!" Wilma exclaimed. "In half an hour there'll be an entire Han fleet here from Nu-yok, and another from Bahflo. They'll get this instantly on their recordographs and location finders. They'll blast the whole valley and the country for miles beyond. Come, Tony. There's no time for the gang to rally. See the signals. We've got to jump."

Over the ridge we went, in long leaps towards the east, the country of the Delawares.

From time to time signal rockets puffed in the sky. Most of them were the "red warnings," the "scatter" signals. But from certain of the others, which Wilma identified as Wyoming rockets, she gathered that whoever was in command (we did not know whether the Boss was alive or not) was ordering an ultimate rally toward the south, and so we changed our course.

It was a great pity, I thought, that the clan had not been equipped throughout its membership with ultrophones, but Wilma explained to me, that not enough of these had been built for distribution as yet, although general distribution had been contemplated within a couple of months.

We traveled far before nightfall overtook us, trying only to put as much distance as possible between ourselves and the valley.

When gathering dusk made jumping too dangerous we sought a comfortable spot beneath the trees, and consumed part of our emergency rations. It was the first time I had tasted the stuff-a highly nutritive synthetic substance called "concentro," which was, however, a bit bitter and unpalatable. But as

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only a mouthful or so was needed, it did not matter.

Neither of us had a cloak, but we were both thoroughly tired and happy, so we curled up together for warmth. I remember Wilma making some sleepy remark about our mating, as she cuddled up, as though the matter were all settled, and my surprise at my own instant acceptance of the idea, for I had not consciously thought of her that way before. But we both fell asleep at once.

In the morning we found little time for love making. The practical problem facing us was too great. Wilma felt that the Wyoming plan must be to rally in the Susquanna territory, but she had her doubts about the wisdom of this plan. In my elation at my success in bringing down the Han ship, and my newly found interest in my charming companion, who was, from my viewpoint of another century, at once more highly civilized and yet more primitive than myself, I had forgotten the ominous fact that the Han ship I had destroyed must have known the exact location of the Wyoming Works.

This meant, to Wilma's logical mind, either that the Hans had perfected new instruments as yet unknown to us, or that somewhere, among the Wyomings or some other nearby gang, there were traitors so degraded as to commit that unthinkable act of trafficking in information with the Hans. In either contingency, she argued, other Han raids would follow, and since the Susquannas had a highly developed organization and more than usually productive plants, the next raid might be expected to strike them.

But at any rate it was clearly our business to get in touch with the other fugitives as quickly as possible, so in spite of muscles that were sore from the excessive leaping of the day before, we continued on our way.

We traveled for only a couple of hours when we saw a multicolored rocket in the sky, some ten miles ahead of us.

"Bear to the left, Tony," Wilma said, "and listen for the whistle."

"Why?" I asked.

"Haven't they given you the rocket code yet?" she replied. "That's what the green, followed by yellow and purple means; to concentrate five miles east of the rocket position. You know the rocket position itself might draw a play of disintegrator beams."

It did not take us long to reach the neighborhood of the indicated rallying, though we were now traveling beneath the trees, with but an occasional leap to a

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top branch to see if any more rocket smoke was floating above. And soon we heard a distant whistle.

We found about half the Gang already there, in a spot where the trees met high above a little stream. The Big Boss and Raid-bosses were busy reorganizing the remnants.

We reported to Boss Hart at once. He was silent, but interested, when he heard our story.

"You two stick close to me," he said, adding grimly, "I'm going back to the valley at once with a hundred picked men, and I'll need you."

Setting the Trap

INSIDE of fifteen minutes we were on our way. A certain amount of caution was sacrificed for the sake of speed, and the men leaped away either across the forest top, or over open spaces of ground, but concentration was forbidden. The Big Boss named the spot on the hillside as the rallying point.

"We'll have to take a chance on being seen, so long as we don't group," he declared, "at least until within five miles of the rallying spot. From then on I want every man to disappear from sight and to travel under cover. And keep your ultrophones open, and tuned on ten-four-seven-six."

Wilma and I had received our battle equipment from the Gear Boss. It consisted of a long-gun, a hand-gun, with a special case of ammunition constructed of inertron, which made the load weigh but a few ounces, and a short sword. This gear we strapped over each other's shoulders, on top of our jumping belts. In addition, we each received an ultrophone, and a light inertron blanket rolled into a cylinder about six inches long by two or three in diameter. This fabric was exceedingly thin and light, but it had considerable warmth, because of the mixture of inertron in its composition.

"This looks like business," Wilma remarked to me with sparkling eyes. (And I might mention a curious thing here. The word "business" had survived from the 20th Century American vocabulary, but not with any meaning of "industry" or "trade," for such things being purely community activities were spoken of as "work" and "clearing." Business simply meant fighting, and that was all.)

"Did you bring all this equipment from the valley?" I asked the Gear boss.

"No," he said. "There was no time to gather anything. All this stuff we cleared from the Susquannas a few hours ago. I was with the Boss on the way down,

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and he had me jump on ahead and arrange it. But you two had better be moving. He's beckoning you now."

Hart was about to call us on our phones when we looked up. As soon as we did so, he leaped away, waving us to follow closeby.

He was a powerful man, and he darted ahead in long, swift, low leaps up the banks of the stream, which followed a fairly straight course at this point. By extending ourselves, however, Wilma and I were able to catch up to him.

As we gradually synchronized our leaps with his, he outlined to us, between the grunts that accompanied each leap, his plan of action.

"We have to start the big business—unh—sooner or later," he said. "And if—unh—the Hans have found any way of locating our positions—unh—it's time to start now, although the Council of Bosses—unh—had intended waiting a few years until enough rocket ships have been—unh—built. But no matter what the sacrifice—unh—we can't afford to let them get us on the run—unh—. We'll set a trap for the yellow devils in the—unh—valley if they come back for their wreckage—unh—and if they don't, we'll go rocketing for some of their liners—unh—on the Nuyok, Clee-lan, Ski-ka-ga course. We can use—unh—that idea of yours of shooting up the repellor—unh—beams. Want you to give us a demonstration."

With further admonition to follow him closely, he increased his pace, and Wilma and I were taxed to our utmost to keep up with him. It was only in ascending the slopes that my tougher muscles overbalanced his greater skill, and I was able to set the pace for him, as I had for Wilma.

We slept in greater comfort that night, under our inertron blankets, and were off with the dawn, leaping cautiously to the top of the ridge overlooking the valley which Wilma and I had left.

The Boss scanned the sky with his ultroscope, patiently taking some fifteen minutes to the task, and then swung his phone into use, calling the roll and giving the men their instructions.

His first order was for us all to slip our ear and chest discs into permanent position.

These ultrophones were quite different from the one used by Wilma's companion scout the day I saved her from the vicious attack of the bandit Gang. That one was contained entirely in a small pocket case. These, with which we were now equipped, consisted of a pair of ear discs, each a separate and self-con-

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tained receiving set. They slipped into little pockets over our ears in the fabric helmets we wore, and shut out virtually all extraneous sounds. The chest discs were likewise self-contained sending sets, strapped to the chest a few inches below the neck and actuated by the vibrations from the vocal cords through the body tissues. The total range of these sets was about eighteen miles. Reception was remarkably clear, quite free from the static that so marked the 20th Century radios, and of a strength in direct proportion to the distance of the speaker.

The Boss' set was triple powered, so that his orders would cut in on any local conversations, which were indulged in, however, with great restraint, and only for the purpose of maintaining contacts.

I marveled at the efficiency of this modern method of battle communication in contrast to the clumsy signaling devices of more ancient times; and also at other military contrasts in which the 20th and 25th Century methods were the reverse of each other in efficiency. These modern Americans, for instance, knew little of hand to hand fighting, and nothing, naturally, of trench warfare. Of barrages they were quite ignorant, although they possessed weapons of terrific power. And until my recent flash of inspiration, no one among them, apparently, had even thought of the scheme of shooting a rocket into a repellor beam and letting the beam itself hurl it upward into the most vital part of the Han ship.

Hart patiently placed his men, first giving his instructions to the campmasters, and then remaining silent, while they placed the individuals.

In the end, the hundred men were ringed about the valley, on the hillsides and tops, each in a position from which he had a good view of the wreckage of the Hans ship. But not a man had come in view, so far as I could see, in the whole process.

The Boss explained to me that it was his idea that he, Wilma and I should investigate the wreck. If Han ships should appear in the sky, we would leap for the hillsides.

I suggested to him to have the men set up their long-guns trained on an imaginary circle surrounding the wreck. He busied himself with this after the three of us leaped down to the Han ship, serving as a target himself, while he called on the men individually to aim their pieces and lock them in position.

In the meantime Wilma and I climbed into the wreckage, but did not find much. Practically all of the instruments and machinery had been twisted out of all

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recognizable shape, or utterly destroyed by the ship's disintegrator rays which apparently had continued to operate in the midst of its warped remains for some moments after the crash.

IT was unpleasant work searching the mangled bodies of the crew. But it had to be done. The Han clothing, I observed, was quite different from that of the Americans, and in many respects more like the garb to which I had been accustomed in the earlier part of my life. It was made of synthetic fabrics like silks, loose and comfortable trousers of knee length, and sleeveless shirts.

No protection, except that against drafts, was needed, Wilma explained to me, for the Han cities were entirely enclosed, with splendid arrangements for ventilation and heating. These arrangements of course were equally adequate in their airships. The Hans, indeed, had quite a distaste for unshaded daylight, since their lighting apparatus diffused a controlled amount of violet rays, making the unmodified sunlight unnecessary for health, and undesirable for comfort. Since the Hans did not have the secret of inertron, none of them wore anti-gravity belts. Yet in spite of the fact that they had to bear their own full weights at all times, they were physically far inferior to the Americans, for they lived lives of degenerative physical inertia, having machinery of every description for the performance of all labor, and convenient conveyances for any movement of more than a few steps.

Even from the twisted wreckage of this ship I could see that seats, chairs and couches played an extremely important part in their scheme of existence.

But none of the bodies were overweight. They seemed to have been the bodies of men in good health, but muscularly much underdeveloped. Wilma explained to me that they had mastered the science of gland control, and of course dietetics, to the point where men and women among them not uncommonly reached the age of a hundred years with arteries and general health in splendid condition.

I did not have time to study the ship and its contents as carefully as I would have liked, however. Time pressed, and it was our business to discover some clue to the deadly accuracy with which the ship had spotted the Wyoming Works.

The Boss had hardly finished his arrangements for the ring barrage, when one of the scouts on an eminence to the north, announced the approach of seven Han ships, spread out in a great semicircle.

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Hart leaped for the hillside, calling to us to do likewise, but Wilma and I had raised the flaps of our helmets and switched off our "speakers" for conversation between ourselves, and by the time we discovered what had happened, the ships were clearly visible, so fast were they approaching.

"Jump!" we heard the Boss order, "Deering to the north. Rogers to the east."

But Wilma looked at me meaningly and pointed to where the twisted plates of the ship, projecting from the ground, offered a shelter.

"Too late, Boss," she said. "They'd see us. Besides I think there's something here we ought to look at. It's probably their magnetic graph."

"You're signing your death warrant," Hart warned.

"We'll risk it," said Wilma and I together.

"Good for you," replied the Boss. "Take command then, Rogers, for the present. Do you all know his voice, boys?"

A chorus of assent rang in our ears, and I began to do some fast thinking as the girl and I ducked into the twisted mass of metal.

"Wilma, hunt for that record," I said, knowing that by the simple process of talking I could keep the entire command continuously informed as to the situation. "On the hillsides, keep your guns trained on the circles and stand by. On the hilltops, how many of you are there? Speak in rotation from Bald Knob around to the east, north, west."

In turn the men called their names. There were twenty of them.

I assigned them by name to cover the various Han ships, numbering the latter from left to right.

"Train your rockets on their repellor rays about three-quarters of the way up, between ships and ground. Aim is more important than elevation. Follow those rays with your aim continuously. Shoot when I tell you, not before. Deering has the record. The Hans probably have not seen us, or at least think there are but two of us in the valley, since they're settling without opening up disintegrators. Any opinions?"

My ear discs remained silent.

"Deering and I remain here until they land and debark. Stand by and keep alert."

Rapidly and easily the largest of the Han ships settled to the earth. Three scouted sharply to the south, rising to a higher level. The others floated motionless about a thousand feet above.

Peeping through a small fissure between two plates, I saw the vast hulk of the ship come to rest full on the line of our prospective ring barrage. A door

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clanged open a couple of feet from the ground, and one by one the crew emerged.

The "Wyoming Massacre

THEY'RE coming out of the ship." I spoke quietly, with my hand over my mouth, for fear they might hear me. "One—two — three — four — five — six — seven — eight — nine. That seems to be all. Who knows how many men a ship like that is likely to carry."

"About ten, if there are no passengers," replied one of my men, probably one of those on the hillside.

"How are they armed?"

"Just knives," came the reply. "They never permit hand-rays on the ships. Afraid of accidents. Have a ruling against it."

"Leave them to us then," I said, for I had a hastily formed plan in my mind. You, on the hillsides, take the ships above. Abandon the ring target. Divide up in training on those repellor rays. You on the hilltops, all train on the repellors of the ships to the south. Shoot at the word, but not before.

"Wilma, crawl over to your left where you can make a straight leap for the door in that ship. These men are all walking around the wreck in a bunch. When they're on the far side, I'll give the word and you leap through that door in one bound. I'll follow. Maybe we won't be seen. We'll overpower the guard inside, but don't shoot. We may escape being seen by both this crew and ships above. They can't see over this wreck."

It was so easy that it seemed too good to be true. The Hans who had emerged from the ship walked round the wreckage lazily, talking in guttural tones, keenly interested in the wreck, but quite unsuspicious.

At last they were on the far side. In a moment they would be picking their way into the wreck.

"Wilma, leap!" I almost whispered the order.

The distance between Wilma's hiding place and the door in the side of the Han ship was not more than fifteen feet. She was already crouched with her feet braced against a metal beam. Taking the lift of that wonderful inertron belt into her calculation, she dove headforemost, like a green projectile, through the door. I followed in a split second, more clumsily, but no less speedily, bruising my shoulder painfully, as I ricocheted from the edge of the opening and brought up sliding against the unconscious girl; for she evidently had hit her head against the partition within the ship into which she had crashed.

We had made some noise within the ship. Shuffling foot-

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steps were approaching down a well lit gangway.

"Any signs we have been observed?" I asked my men on the hillsides.

"Not yet." I heard the Boss reply, "Ships overhead still standing. No beams have been broken out. Men on ground absorbed in wreck. Most of them have crawled into it out of sight."

"Good," I said quickly. "Deering hit her head. Knocked out. One or more members of the crew approaching. We're not discovered yet. I'll take care of them. Stand a bit longer, but be ready."

I think my last words must have been heard by the man who was approaching, for he stopped suddenly.

I crouched at the far side of the compartment, motionless. I would not draw my sword if there were only one of them. He would be a weakling, I figured, and I should easily overcome him with my bare hands.

Apparently reassured at the absence of any further sound, a man came around a sort of bulkhead—and I leaped.

I swung my legs up in front of me as I did so, catching him full in the stomach and knocked him cold.

I ran forward along the keel gangway, searching for the control room. I found it well up in the nose of the ship. And it was deserted. What could I do to jam the controls of the ships that would not register on the recording instruments of the other ships? I gazed at the mass of controls. Levers and wheels galore. In the center of the compartment, on a massively braced universal joint mounting, was what I took for the repellor generator. A dial on it glowed and a faint hum came from within its shielding metallic case. But I had no time to study it.

Above all else, I was afraid that some automatic telephone apparatus existed in the room, through which I might be heard on the other ships. The risk of trying to jam the controls was too great. I abandoned the idea and withdrew softly. I would have to take a chance that there was no other member of the crew aboard.

I ran back to the entrance compartment. Wilma still lay where she had slumped down. I heard the voices of the Hans approaching. It was time to act. The next few seconds would tell whether the ships in the air would try or be able to melt us into nothingness. I spoke.

"Are you boys all ready?" I asked, creeping to a position opposite the door and drawing my hand-gun.

There was a chorus of assent.

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"Then on the count of three, shoot up those repellor rays—all of them—and for God's sake, don't miss." And I counted.

I think my "three" was a bit weak. I know it took all the courage I had to utter it.

For an agonizing instant nothing happened, except that the landing party from the ship strolled into my range of vision.

Then startled, they turned their eyes upward. For an instant they stood frozen with horror at whatever they saw.

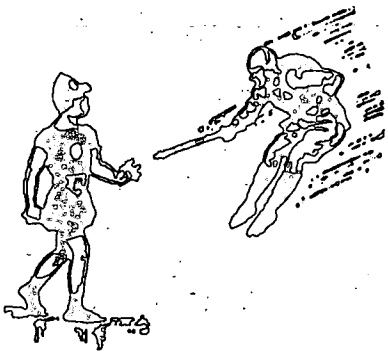
One hurled his knife at me. It grazed my cheek. Then a couple of them made a break for the doorway. The rest followed. But I fired pointblank with my handgun, pressing the button as fast as I could and aiming at their feet to make sure my explosive rockets would make contact and do their work.

The detonations of my rockets were deafening. The spot on which the Hans stood flashed into a blinding glare. Then there was nothing there except their torn and mutilated corpses. They had been fairly bunched, and I got them all.

I ran to the door, expecting any instant to be hurled into infinity by the sweep of a disintegrator ray.

Some eighth of a mile away I saw one of the ships crash to earth. A disintegrator ray came into my line of vision, wavered uncertainly for a moment and then began to sweep directly toward the ship in which I stood. But it never reached it. Suddenly, like a light switched off, it shot to one side and a moment later another vast hulk crashed to earth. I looked out, then stepped out on the ground.

The only Han ships in the sky were two of the scouts to the south which were hanging perpendicularly, and sagging slowly down. The others must have crashed down while I was deafened by the sound of the explosion of my own rockets.



The American leaped and swung his legs out, catching the Han full in the stomach.

Somebody hit the other repellor ray of one of the two remaining ships and it fell out of sight beyond a hilltop. The other, farther away, drifted down diagonally, its disintegrator ray playing viciously over the ground below it.

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I shouted with exultation and relief.

"Take back the command, Boss!" I yelled.

His commands, sending out jumpers in pursuit of the descending ship, rang in my ears, but I paid no attention to them. I leaped back into my compartment of the Han ship and knelt beside my Wilma. Her padded helmet had absorbed much of the blow, I thought; otherwise, her skull might have been fractured.

"Oh, my head!" she groaned, coming to as I lifted her gently in my arms and strode out in the open with her. "We must have won, dearest, did we?"

"We most certainly did," I reassured her. "All but one crashed and that one is drifting down toward the south; we've captured this one we're in intact. There was only one member of the crew aboard when we dove in."

LESS than an hour afterwards the Big Boss ordered the outfit to tune in ultrophones on three-twenty-three to pick up a translated broadcast of the Han intelligence office in Nu-yok from the Susquanna station. It was in the form of a public warning and news item, and read as follows:

"This is Public Intelligence Office, Nu-Yok, broadcasting warning to navigators of private ships, and news of public interest. The squadron of seven ships which left Nu-Yok this morning to investigate the recent destruction of the GK-984 in the Wyoming Valley, has been destroyed by a series of mysterious explosions similar to those which wrecked the GK-984.

"The phones, viewplates, and all other signaling devices of fire of the seven ships ceased operating suddenly at approximately the same moment, about seven-four-nine." (According to the Han system of reckoning time, seven and forty-nine one hundredths after midnight.) After violent disturbances the location finders went out of operation. Electroactivity registers applied to the territory of the Wyoming Valley remain dead.

"The Intelligence Office has no indication of the kind of disaster which overtook the squadron except certain evidences of explosive phenomena similar to those in the case of the GK-984, which recently went dead while beaming the valley in a systematic effort to wipe out the works and camps of the tribesmen. The Office considers, as obvious, the deduction that the tribesmen have developed a new, and as yet undetermined, technique of attack on airships, and has recommended to the Heaven-Born that immediate and unlimited authority be given the Naviga-

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tion Intelligence Division to make an investigation of this technique and develop a defense against it.

"In the meantime it urges that private navigators avoid this territory in particular, and in general hold as closely as possible to the official inter-city routes, which now are being patrolled by the entire force of the Military Office, which is beaming the routes generously to a width of ten miles. The Military Office reports that it is at present considering no retaliatory raids against the tribesmen. With the Navigation Intelligence Division, it holds that unless further evidence of the nature of the disaster is developed in the near future, the public interest will be better served, and at smaller cost of life, by a scientific research than by attempts at retaliation, which may bring destruction on all ships engaging therein. So unless further evidence actually is developed, or the Heaven-Born orders to the contrary, the Military will hold to a defensive policy.

"Unofficial intimations from Lo-Tan are to the effect that the Heaven-Council has the matter under consideration.

"The Navigation Intelligence Office broadcasts the following detailed observations:

"The squadron proceeded to a position above the Wyoming Valley where the wreck of the GK-984 was known to be, from the record of its location finder before it went dead recently. There the bottom projectoscope relays of all ships registered the wreck of the GK-984. Teleprojectoscope views of the wreck and the bowl of the valley showed no evidence of the presence of tribesmen. Neither ship registers nor base registers showed any indication of electroactivity except from the squadron itself. On orders from the Base Squadron Commander, the LD-248, LK-745 and LG-25 scouted southward at 3,000 feet. The GK-43, GK-981 and GK-220 stood above at 2,500 feet, and the GJ-18 landed to permit personal inspection of the wreck by the science committee. The party debarked, leaving one man on board in the control cabin. He set all projectoscopes at universal focus except RB-3", (this meant the third projectoscope from the bow of the ship, on the right-hand side of the lower deck) "with which he followed the landing group as it walked around the wreck.

"The first abnormal phenomenon recorded by any of the instruments at Base was that relayed automatically from projectoscope RB-4 of the GK-18, which as the party disappeared from view in back of the wreck,

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recorded two green missiles of roughly cylindrical shape, projected from the wreckage into the landing compartment of the ship. At such close range these were not clearly defined, owing to the universal focus at which the projectoscope was set. The Base Captain of GK-18 at once ordered the man in the control room to investigate, and saw him leave the control room in compliance with this order. An instant later confused sounds reached the control-room electrophone, such as might be made by a man falling heavily, and footsteps reapproached the control room, a figure entering and leaving the control room hurriedly. The Base Captain now believes, and the stills of the photorecord support his belief, that this was not the crew member who had been left in the control room. Before the Base Captain could speak to him he left the room, nor was any response given to the attention signal the Captain flashed throughout the ship.

"At this point projectoscope RB-3 of the ship now out of focus control, dimly showed the landing party walking back toward the ship. RB-4 showed it more clearly. Then on both these instruments, a number of blinding explosives in rapid succession were seen and the electrophone relays registered terrific concussions; the ship's electronic apparatus and projectoscopes apparatus went dead.

"Reports of the other ships' Base Observers and Executives, backed by the photorecords, show the explosions as taking place in the midst of the landing party as it returned, evidently unsuspicious, to the ship. Then in rapid succession they indicate that terrific explosions occurred inside and outside the three ships standing above close to their rep ray generators, and all signals from these ships thereupon went dead.

"Of the three ships scouting to the south, the LD-248 suffered an identical fate, at the same moment. Its records add little to the knowledge of the disaster. But with the LK-745 and the LG-25 it was different.

"The relay instruments of the LK-745 indicated the destruction by an explosion of the rear rep-ray generator, and that the ship hung stern down for a short space, swinging like a pendulum. The forward viewplates and indicators did not cease functioning, but their records are chaotic, except for one projectoscope still, which shows the bowl of the valley, and the GK-981 falling, but no visible evidence of tribesmen. The control-room viewplate is also a chaotic record of the ship's crew tumbling and falling to the rear

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wall. Then the forward rep-ray generator exploded, and all signals went dead.

"The fate of the LG-25 was somewhat similar, except that this ship hung nose down, and drifted on the wind southward as it descended out of control.

"As its control room was shattered, verbal report from its Action Captain was precluded. The record of the interior rear viewplate shows members of the crew climbing toward the rear rep-ray generator in an attempt to establish manual control of it, and increase the lift. The projectoscope relays, swinging in wide arcs, recorded little of value except at the ends of their swings. One of these, from a machine which happened to be set in telescopic focus, shows several views of great value in picturing the falls of the other ships, and all of the rear projectoscope records enable the reconstruction in detail of the pendulum and torsional movements of the ship, and its sag toward the earth. But none of the views showing the forest below contain any indication of tribesmen's presence. A final explosion put this ship out of commission at a height of 1,000 feet, and at a point four miles S. by E. of the center of the valley."

The message ended with a repetition of the warning to other airmen to avoid the valley.

Incredible Treason

AFTER receiving this report, and reassurances of support from the Big Bosses of the neighboring Gangs, Hart determined to reestablish the Wyoming Valley community.

A careful survey of the territory showed that it was only the northern sections and slopes that had been "beamed" by the first Han ship.

The synthetic fabrics plant had been partially wiped out, though the lower levels underground had not been reached by the dis ray. The forest screen above it, however, had been annihilated, and it was determined to abandon it, after removing all usable machinery and evidences of the processes that might be of interest to the Han scientists, should they return to the valley in the future.

The ammunition plant, and the rocketship plant, which had just been about to start operation at the time of the raid, were intact, as were the other important plants.

Hart brought the Camboss up from the Susquanna Works, and laid out new camp locations, scattering them farther to the south, and avoiding ground which had been seared by the Han beams and the immediate locations of the Han wrecks.

During this period, a sharp

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check was kept upon Han messages, for the phone plant had been one of the first to be put in operation, and when it became evident that the Hans did not intend any immediate reprisals, the entire membership of the community was summoned back, and normal life was resumed.

Wilma and I had been married the day after the destruction of the ships, and spent this intervening period in a delightful honeymoon, camping high in the mountains. On our return, we had a camp of our own, of course. We were assigned to location 1017. And as might be expected, we had a great deal of banter over which one of us was Camp Boss. The title stood after my name on the Big Boss' records and those of the Big Camboss, of course, but Wilma airily held that this meant nothing at all—and generally succeeded in making me admit it whenever she chose.

I found myself a full-fledged member of the Gang now, for I had elected to search no farther for a permanent alliance, much as I would have liked to familiarize myself with this 25th Century life in other sections of the country. The Wyomings had a high morale, and had prospered under the rule of Big Boss Hart for many years. But many of the gangs, I found, were badly organized, lacked strong hands in authority, and were rife with intrigue. On the whole, I thought I would be wise to stay with a group which had already proved its friendliness, and in which I seemed to have prospects of advancement. Under these modern social and economic conditions, the kind of individual freedom to which I had been accustomed in the 20th Century was impossible. I would have been as much of a nonentity in every phase of human relationship by attempting to avoid alliances, as any man of the 20th Century would have been politically, who aligned himself with no political party.

This entire modern life, it appeared to me, judging from my ancient viewpoint, was organized along what I called "political" lines. And in this connection, it amused me to notice how universal had become the use of the word "boss." The leader, the person in charge or authority over anything, was a "boss." There was as little formality in his relations with his followers as there was in the case of the 20th Century political boss, and the same high respect paid him by his followers as well as the same high consideration by him of their interests. He was just as much of an autocrat, and just as much dependent upon the general popularity of his actions for the ability to maintain his autocracy.

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The sub-boss who could not command the loyalty of his followers was as quickly deposed, either by them or by his superiors, as the ancient ward leader of the 20th Century who lost control of his votes.

As society was organized in the 20th Century, I do not believe the system could have worked in anything but politics. I tremble to think what would have happened, had the attempt been made to handle the A.E.F. this way during the First World War, instead of by that rigid military discipline and complete assumption of the individual as a mere standardized cog in the machine.

But owing to the centuries of desperate suffering the people had endured at the hands of the Hans, there developed a spirit of self-sacrifice and consideration for the common good that made the scheme applicable and efficient in all forms of human cooperation.

I have a little heresy about all this, however. My associates regard the thought with as much horror as many worthy people of the 20th Century felt in regard to any heretical suggestion that the original outline of government as laid down in the First Constitution did not apply as well to 20th Century conditions as to those of the early 19th.

In later years, I felt that there was a certain softening of moral fiber among the people, since the Hans had been finally destroyed with all their works; and Americans have developed a new luxury economy. I have seen signs of the reawakening of greed, of selfishness. The eternal cycle seems to be at work. I fear that slowly, though surely, private wealth is reappearing, codes of inflexibility are developing; they will be followed by corruption, degradation; and in the end some cataclysmic event will end this era and usher in a new one.

All this, however, is wandering afar from my story, which concerns our early battles against the Hans, and not our more modern problems of self-control.

Our victory over the seven Han ships had set the country ablaze. The secret had been carefully communicated to the other gangs, and the country was agog, from one end to the other. There was feverish activity in the ammunition plants, and the hunting of stray Han ships became an enthusiastic sport. The results were disastrous to our hereditary enemies.

From the Pacific Coast came the report of a great Transpacific liner of 75,000 tons "lift" being brought to earth from a position of invisibility above the clouds. A dozen Sacramentos had

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caught the hazy outlines of its rep-rays approaching them, head-on, in the twilight, like ghostly pillars reaching into the sky. They had fired rockets into it with ease, whereas they would have had difficulty in hitting it if it had been moving at right angles to there position. They got one-rep-ray. The other was not strong enough to hold it up. It floated to earth, nose down, and since it was unarmed and unarmored, they had no difficulty in shooting it to pieces and massacring its crew and passengers. It seemed barbarous to me. But then I did not have centuries of bitter persecution in my blood.

From the Jersey Beaches we received news of the destruction of a Nu-yok-A-lan-a liner. The Sandsnipers, practically invisible in their sand colored clothing, and half buried along the beaches, lay in wait for days, risking the play of dis beams along the route, and finally registering four hits within a week. The Hans discontinued their service along this route, and as evidence that they were badly shaken by our success, sent no raiders down the Beaches.

It was a few weeks later that Big Boss Hart sent for me.

"TONY," he said, "There are two things I want to talk to you about. One of them will become public property in a few days, I think. We aren't going to get any more Han ships by shooting up their repellor rays unless we use much larger rockets. They are wise to us now. They're putting armor of great thickness in the hulls of their ships below the rep-ray machines. Near Bah-flo this morning a party of Eries shot one without success. The explosions staggered her, but did not penetrate. As near as we can gather from their reports, their laboratories have developed a new alloy of great tensile strength and elasticity which nevertheless lets the rep-rays through like a sieve. Our reports indicate that the Eries' rockets bounced off harmlessly. Most of the party was wiped out as the dis rays went into action on them.

"This is going to mean real business for all of the gangs before long. The Big Bosses have just held a national ultrophone council. It was decided that America must organize on a national basis. The first move is to develop sectional organization by Zones. I have been made Superboss of the Midatlantic Zone.

"We're in for it now. The Hans are sure to launch reprisal expeditions. If we're to save the race we must keep them away from our camps and plants. I'm thinking of developing a permanent field force, along the lines of the regular armies of the 20th Cen-

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tury you told me about. Its business will be twofold; to carry the warfare as much as possible to the Hans, and to serve as a decoy, to keep their attention from our plants. I'm going to need your help in this.

"The other thing I wanted to talk to you about is this: Amazing and impossible as it seems, there is a group, or perhaps an entire gang, somewhere among us, that is betraying us to the Hans. It may be the Bad Bloods, or it may be one of those gangs who live near one of the Han cities. You know, a hundred and fifteen or twenty years ago there were certain of these people's ancestors who actually degraded themselves by mating with the Hans, sometimes even serving them as slaves, in the days before they brought all their service machinery to perfection.

"There is such a gang, called the Nagras, up near Bah-flo, and another in Mid-Jersey that men call the Pineys. But I hardly suspect the Pineys. There is little intelligence among them. They wouldn't have the information to give the Hans, nor would they be capable of imparting it. They're absolute savages."

"Just what evidence is there that anybody has been clearing information to the Hans?" I asked.

"Well," he replied, "first of all there was that raid upon us. That first Han ship knew the location of our plants exactly. You remember it floated directly into position above the valley and began a systematic beaming. Then, the Hans quite obviously have learned that we are picking up their electrophone waves, for they've gone back to their old, but extremely accurate, system of directional control. But we've been getting them for the past week by installing automatic rebroadcast units along the scar paths. This is what the Americans called those strips of country directly under the regular ship routes of the Hans, who as a matter of precaution frequently blasted them with their dis beams to prevent the growth of foliage which might give shelter to the Americans. But they've been beaming those paths so hard, it looks as though they even had information of this strategy. And in addition, they've been using code. Finally, we've picked up three messages in which they discuss, with some nervousness, the existence of our 'mysterious' ultrophone."

"But they still have no knowledge of the nature and control of ultronic activity?" I asked.

"No," said the Big Boss thoughtfully, "they don't seem to have a bit of information about it."

"Then it's quite clear," I ventured, "that whoever is 'clearing'

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us to them is doing it piecemeal. It sounds like a bit of occasional barter, rather than an out and out alliance. They're holding back as much information as possible for future bartering, perhaps."

"Yes," Hart said, "and it isn't information the Hans are giving in return, but some form of goods, or privilege. The trick would be to locate the goods. I guess I'll have to make a personal trip around among the Big Bosses."

The Han City

THIS conversation set me thinking. All of the Han electrophone inter-communication had been an open record to the Americans for a good many years, and the Hans were just finding it out. For centuries they had not regarded us as any sort of a menace. Unquestionably it had never occurred to them to secrete their own records. Somewhere in Nu-Yok of Bah-flo, or possibly in Lo-Tan itself, the record of this traitorous transaction would be more or less openly filed. If we could only get at it! I wondered if a raid might not be possible.

Bill Hearn and I talked it over with our Han-affairs Boss and his experts. There ensued several days of research, in which the Han records of the entire decade were scanned and analyzed. In the end they picked out a mass of detail, and fitted it together into a very definite picture of the great central filing office of the Hans in Nu-Yok, where the entire mass of official records was kept, constantly available for instant projectoscoping to any of the city's offices, and of the system by which the information was filed.

The attempt began to look feasible, though Hart instantly turned the idea down when I first presented it to him. It was unthinkable, he said. Sheer suicide. But in the end I persuaded him.

"I will need," I said, "Blash, who is thoroughly familiar with the Han library system; Bert Gaunt, who for years has specialized on their military offices; Bill Barker, the ray specialist, and the best swooper pilot we have." *Swoopers* are one-man and two-man ships, developed by the Americans, with skeleton backbones of inertron (during the war painted green for invisibility against the green forests below) and "bellies" of clear ultron.

"That will be Mort Gibbons," said Hart. "We've only got three swoopers left, Tony, but I'll risk one of them if you and the others will voluntarily risk your existences. But mind, I won't urge or order one of you to go. I'll spread

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the word to every Plant Boss at once to give you anything and everything you need in the way of equipment."

When I told Wilma of the plan, I expected her to raise violent and tearful objections, but she didn't. She was made of far sterner stuff than the women of the 20th Century. Not that she couldn't weep as copiously or be just as whimsical on occasion; but she wouldn't weep for the same reasons.

She just gave me an unfathomable look, in which there seemed to be a bit of pride, and asked eagerly for the details. I confess I was somewhat disappointed that she could so courageously risk my loss, even though I was amazed at her fortitude. But later I was to learn how little I knew her then.

We were ready to slide off at dawn the next morning. I had kissed Wilma good-bye at our camp, and after a final conference over our plans, we boarded our craft and gently glided away over the tree tops on a course, which, after crossing three routes of the Han ships, would take us out over the Atlantic, off the Jersey coast, whence we would come up on Nu-Yok from the ocean.

Twice we had to nose down and lie motionless on the ground near a route while Han ships passed. Those were tense moments. Had the green back of our ship been observed, we would have been disintegrated in a second. But it wasn't.

Once over the water, however, we climbed in a great spiral, ten miles in diameter, until our altimeter registered ten miles. Here Gibbons shut off his rocket motor, and we floated, far above the level of the Atlantic liners, whose course was well to the north of us anyhow, and waited for nightfall.

Then Gibbons turned from his control long enough to grin at me.

"I have a surprise for you, Tony," he said throwing back the lid of what I had supposed was a big supply case. And with a sigh of relief, Wilma stepped out of the case.

"If you 'go into zero' (a common expression of the day for being annihilated by the disintegrator ray), you don't think I'm going to let you go alone, do you, Tony? I couldn't believe my ears last night when you spoke of going without me, until I realized that you are still five hundred years behind the times in lots of ways. Don't you know, dear heart, that you offered me the greatest insult a husband could give a wife? You didn't, of course."

The others, it seemed, had all been in on the secret, and now they would have kidded me un-

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mercifully, except that Wilma's eyes blazed dangerously.

AT nightfall, we maneuvered to a position directly above the city. This took some time and calculation on the part of Bill Barker, who explained to me that he had to determine our point by ultronic bearings. The slightest resort to an electronic instrument, he feared, might be detected by our enemies' locaters. In fact, we did not dare bring our swooper any lower than five miles for fear that its capacity might be reflected in their instruments.

Finally, however, he succeeded in locating above the central tower of the city.

"If my calculations are as much as ten feet off," he remarked with confidence, "I'll eat the tower. Now the rest is up to you, Mort. See what you can do to hold her steady. No—here, watch this indicator—the red beam, not the green one. See-if you keep it exactly centered on the needle, you're O.K. The width of the beam represents seventeen feet. The tower platform is fifty feet square, so we've got a good margin to work on."

For several moments we watched as Gibbons bent over his levers, constantly adjusting them with deft touches of his fingers. After a bit of wavering, the beam remained centered on the needle.

"Now," I said, "let's drop."

I opened the trap and looked down, but quickly shut it again when I felt the air rushing out of the ship into the rarefied atmosphere in a torrent. Gibbons literally yelled a protest from his instruction board.

"I forgot," I mumbled. "Silly of me. Of course, we'll have to drop out of compartment."

The compartment, to which I referred, was similar to those in some of the 20th Century submarines. We all entered it. There was barely room for us to stand, shoulder to shoulder. With some struggles, we got into our special air helmets and adjusted the pressure. At our signal, Gibbons exhausted the air in the compartment, pumping it into the body of the ship, and as the little signal light flashed, Wilma threw open the hatch.

Setting the ultron wire reel, I climbed through, and began to slide down gently.

We all had our belts on, of course, adjusted to a weight balance of but a few ounces. And the five-mile reel of ultron wire that was to be our guide, was of gossamer fineness, though, anyway, I believe it would have lifted the full weight of the five of us, so strong and tough was the invisible metal. As an extra precaution, since the wire was of

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the purest metal, and therefore totally invisible, even in daylight, we all had our belts hooked on small rings that slid down the wire.

I went down with the end of the wire. Wilma followed a few feet above me, then Barker, Gaunt and Blash. Gibbons, of course, stayed behind to hold the ship in position and control the paying out of the line. We all had our ultrophones in place inside our air helmets, and so could converse with one another and with Gibbons. But at Wilma's suggestion, although we would have liked to let the Big Boss listen in, we kept them adjusted to short-range work, for fear that those who had been clearing with the Hans, and against whom we were on a raid for evidence, might also pick up our conversation. We had no fear that the Hans would hear us. In fact, we had the added advantage that, even after we landed, we could converse freely without danger of their hearing our voices through our air helmets.

For a while I could see nothing below but utter darkness. Then I realized, from the feel of the air as much as from anything, that we were sinking through a cloud layer. We passed through two more cloud layers before anything was visible to us.

Then there came under my gaze, about two miles below, one of the most beautiful sights I have even seen; the soft, yet brilliant, radiance of the great Han city of Nu-Yok. Every foot of its structural members seemed to glow with a wonderful incandescence, tower piled up on tower, and all built on the vast base-mass of the city, which, so I had been told, sheered upward from the surface of the rivers to a height of 728 levels.

The city, I noted with some surprise, did not cover anything like the same area as the New York of the 20th Century. It occupied, as a matter of fact, only the lower half of Manhattan Island, with one section straddling the East River and spreading out sufficiently over what once had been Brooklyn, to provide berths for the great liners and other air craft.

Straight beneath my feet was a tiny dark patch. It seemed the only spot in the entire city that was not aflame with radiance. This was the central tower, in the top floors of which were housed the vast library of record files and the main projectoscope plant.

"You can shoot the wire now," I ultrophoned Gibbons, and let go the little weighted knob. It dropped like a plummet, and we followed with considerable speed, but braking our descent with gloved hands sufficiently to see whether the knob, on which a

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faint light glowed as a signal for ourselves, might be observed by any Han guard or night prowler. Apparently it was not, and we again shot down with accelerated speed.

We landed on the roof of the tower without any mishap, and fortunately for our plan, in darkness. Since there was nothing above it on which it would have been worth while to shed illumination, or from which there was any need to observe it, the Hans had neglected to light the tower roof; or indeed to occupy it at all. This was the reason we had selected it.

As soon as Gibbons had our word, he extinguished the knob light, and the knob, as well as the wire, became totally invisible. At our ultrophoned word, he would light it again.

"No gun play now," I warned. "Swords only, and then only if absolutely necessary."

Closely bunched, and treading as lightly as only inertron-belted people could, we made our way cautiously through a door and down an inclined plane to the floor below, where Gaunt and Blash assured us the military offices were located.

Twice Barker cautioned us to stop as we were about to pass in front of mirror-like "windows" in the passage wall, and flattening ourselves to the floor, we crawled past them.

"Projectoscopes," he said. "Probably on automatic record only, at this time of night. Still, we don't want to leave any records for them to study after we're gone."

"Were you ever here before?" I asked.

"No," he replied, "but I haven't been studying their electrophone communications for seven years without being able to recognize these machines when I run across them."

The Fight in the Tower

So far we had not laid eyes on Han. The tower seemed deserted. Blash and Gaunt, however, assured me that there would be at least one man on "duty" in the military offices, though he would probably be asleep, and two or three in the library proper and the projectoscope plant.

"We've got to put them out of commission," I said. "Did you bring the 'dope' cans, Wilma?"

"Yes," she said, "two for each."

We were now two levels below the roof, and at the point where we were to separate.

I did not want to let Wilma out of my sight, but it was necessary.

According to our plan, Barker was to make his way to the projectoscope plant, Blash and I to the library, and Wilma and Gaunt to the military office.

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Blash and I traversed a long corridor, and paused at the green arched doorway of the library. Cautiously we peered in. Seated at three great switchboards were library operatives. Occasionally one of them would reach lazily for a lever, or sleepily push a button, as little numbered lights winked on and off. They were answering calls for electrograph and viewplate records on all sorts of subjects from all sections of the city.

I apprised my companions of the situation.

"Better wait a bit," Blash added. "The calls will lessen shortly."

Wilma reported an officer in the military office sound asleep.

"Give him the can, then," I said.

Barker was to do nothing more than keep watch in the projectoscope plant, and a few moments later he reported himself well concealed, with a splendid view of the floor.

"I think we can take a chance now," Blash said to me, and at my nod, he opened the lid of his dope can. Of course, the fumes did not affect us, through our helmets. They were absolutely without odor or visibility, and in a few seconds the librarians were unconscious. We stepped into the room.

There ensued considerable cautious observation and experiment on the part of Gaunt, working from the military office, and Blash in the library; while Wilma and I, with drawn swords and sharply attuned microscopes, stood guard, and occasionally patrolled nearby corridors.

"I hear something approaching," Wilma said after a bit, with excitement in her voice. "It's a soft, gliding sound."

"That's an elevator somewhere," Barker cut in from the projectoscope floor. "Can you locate it? I can't hear it."

"It's to the east of me," she replied.

"And to my west," said I, faintly catching it. "It's between us, Wilma, and nearer you than me. Be careful. Have you got any information yet, Blash and Gaunt?"

"Getting it now," one of them replied. "Give us two minutes more."

"Keep at it then," I said. "We'll guard."

The soft, gliding sound ceased.

"I think it's very close to me," Wilma almost whispered. "Come closer Tony, I have a feeling something is going to happen. I've never known my nerves to get taut like this without reason."

In some alarm, I launched myself down the corridor in a great leap toward the intersection

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whence I knew I could see her.

In the middle of my leap my ultrophone registered her gasp of alarm. The next instant I glided to a stop at the intersection to see Wilma backing toward the door of the military office, her sword red with blood, and an inert form on the corridor floor. Two other Hans were circling to either side of her with wicked looking knives, while a third evidently a high officer, judging by the resplendence of his garb tugged desperately to get an electrophone instrument out of a bulky pocket. If he ever gave the alarm, there was no telling what might happen to us.

I WAS at least seventy feet away, but I crouched low and sprang with every bit of strength in my legs. It would be more correct to say that I dived, for I reached the fellow head on, with no attempt to draw my legs beneath me.

Some instinct must have warned him, for he turned suddenly as I hurtled close to him. But by this time I had sunk to the floor, and had stiffened myself rigidly, lest a dragging knee or foot might just prevent my reaching him. I brought my blade upward and over. It was a vicious slash that laid him open, bisecting him from groin to chin, and his dead body toppled down on me, as I slid to a tangled stop.

The other two startled, turned. Wilma leaped at one and struck him down with a side slash, I looked up at this instant, and the dazed fear on his face at the length of her leap, registered vividly. The Hans knew nothing of our inertron belts, it seemed, and these leaps and dives of ours filled them with terror.

As I rose to my feet, a gory mess, Wilma, with a poise and speed which I found time to admire even in this crisis, again leaped. This time she dove head first as I had done, and with a beautifully executed thrust, ran the last Han through the throat.

Uncertainly, she scrambled to her feet, staggered queerly, and then sank gently prone on the corridor. She had fainted.

At this juncture, Blash and Gaunt reported with elation that they had the record we wanted.

"Back to the roof, everybody!" I ordered, as I picked Wilma up in my arms. With her inertron belt, she felt as light as a feather.

Gaunt joined me at once from the military office, and at the intersection of the corridor, we came upon Blash waiting for us. Barker, however, was not in evidence.

"Where are you, Barker?" I called.

"Go ahead," he replied. "I'll be with you on the roof at once."

We came out in the open without any further mishap, and I

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instructed Gibbons in the ship to light the knob on the end of the ultron wire. It flashed dully a few feet away from us. Just how he had maneuvered the ship to keep our end of the line in position, without its swinging in a tremendous arc, I have never been able to understand. Had not the night been an unusually still one, he could not have checked the initial pendulum-like movements. As it was, there was considerable air current at certain of the levels, and in different directions too. But Gibbons was an expert of rare ability and sensitivity in the handling of a rocket ship, and he managed, with the aid of his delicate instruments, to sense the drifts almost before they affected the fine ultron wire, and to neutralize them with little shifts in the position of the ship.

Blash and Gaunt fastened their rings to the wire, and I hooked my own and Wilma's on, too. But on looking around, I found Barker was still missing.

"Barker, come!" I called. "We're waiting."

"Coming!" he replied, and indeed, at that instant, his figure appeared up the ramp. He chuckled as he fastened his ring to the wire and said something about a little surprise he had left for the Hans.

"Don't reel in the wire more than a few hundred feet," I instructed Gibbons. "It will take too long to wind it in. We'll float up, and when we're aboard, we can drop it."

In order to float up, we had to dispense with a pound or two of weight apiece. We hurled our swords from us, and kicked off our shoes as Gibbons reeled up the line a bit, and then letting go of the wire, began to hum upward on our rings with increasing velocity.

The rush of air brought Wilma to, and I hastily explained to her that we had been successful. Receding far below us now, I could see our dully shining knob swinging to and fro in an ever widening arc, as it crossed and recrossed the black square of the tower roof. As an extra precaution, I ordered Gibbons to shut off the light, and to show one from the belly of the ship, for so great was our speed now, that I began to fear we would have difficulty in checking ourselves. We were literally falling upward, and with terrific acceleration.

Fortunately, we had several minutes in which to solve this difficulty, which none of us, strangely enough, has foreseen. It was Gibbons who found the answer.

"You'll be all right if all of you grab the wire tight when I give the word," he said. "First I'll start reeling it in at full speed. You won't get much of a jar, and

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then I'll decrease its speed again gradually, and its weight will hold you back. Are you ready? One—two—three!"

We all grabbed tightly with our gloved hands as he gave the word. We must have been rising a good bit faster than he figured, however, for it wrenched our arms considerably, and the maneuver set up a sickening pendulum motion.

For a while all we could do was swing there in an arc that may have been a quarter of a mile across, about three and a half miles above the city, and still more than a mile away from our ship.

Gibbons skilfully took up the slack as our momentum pulled up the line. Then at last we had ourselves under control again, and continued our upward journey, checking our speed somewhat with our gloves.

There was not one of us who did not breathe a big sigh of relief when we scrambled through the hatch safely into the ship again, cast off the ultron line and slammed the trap shut.

Little realizing that we had a still more terrible experience to go through, we discussed the information Blash and Gaunt had between them extracted from the Han records, and the advisability of ultrophoning our findings to Hart at once.

The Walls of Hell

THE traitors were, it seemed, a degenerate gang of Americans, located a few miles north of Nu-Yok on the wooded banks of the Hudson, the Sinsings. They had exchanged scraps of information to the Hans in return for several old repellor ray machines, and the privilege of tuning in on the Han electronic power broadcast for their operation, provided their ships agreed to subject themselves to the orders of the Han traffic office, while aloft.

The rest wanted to ultrophone their news at once, since there was always danger that we might never get back to the gang with it.

I objected, however. The Sinsings would be likely to pick up our message. Even if we used the directional projector, they might have scouts out to the west and south in the big inter-gang stretches of country. They would flee to Nu-Yok and escape the punishment they merited. It seemed to be vitally important that they should not, for the sake of example to other weak groups among the American gangs, as well as to prevent a crisis in which they might clear more vital information to the enemy.

"Out to sea again," I ordered Gibbons. "They'll be less likely to look for us in that direction."

"Easy, Boss, easy," he replied.

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"Wait until we get up a mile or two more. They must have discovered evidences of our raid by now, and their dis ray wall may go in operation any moment."

Even as he spoke, the ship lurched downward and to one side.

"There it is!" he shouted. "Hang on, everybody. We're going to nose straight up!" And he flipped the rocket motor control wide open.

Looking through one of the rear ports, I could see a nebulous, luminous ring, and on all sides the atmosphere took on a faint iridescence.

We were almost over the destructive range of the disintegrator ray wall, a hollow cylinder of annihilation shooting upward from a solid ring of generators surrounding the city. It was the main defense system of the Hans, which had never been used except in periodic tests. They may or may not have suspected that an American rocket ship was within the cylinder; probably they had turned on their generators more as a precaution to prevent any reaching a position above the city.

But even at our present great height, we were in great danger. It was a question how much we might have been harmed by the rays themselves, for their effective range was not much more than seven or eight miles. The greater danger lay in the terrific downward rush of air within the cylinder to replace that which was being burned into nothingness by the continual play of the disintegrators. The air fell into the cylinder with the force of a gale. It would be rushing toward the wall from the outside with terrific force also, but, naturally, the effect was intensified on the interior.

Our ship vibrated and trembled. We had only one chance of escape—to fight our way well above the current. To drift down with it meant ultimately, and inevitably, to be sucked into the destruction wall at some lower level.

But very gradually and jerkily our upward movement, as shown on the indicators, began to increase, and after an hour of desperate struggle we were free of the maelstrom and into the rarefied upper levels. The terror beneath us was now invisible through several layers of cloud formations.

Gibbons brought the ship back to an even keel, and drove her eastward into one of the most brilliantly gorgeous sunrises I have even seen.

We described a great circle to the south and west, in a long easy dive, for he had cut out his rocket motors to save them as much as possible. We had drawn

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terrifically on their fuel reserves in our battle with the elements. For the moment, the atmosphere below cleared, and we could see the Jersey coast far beneath, like a great map.

"We're not through yet," remarked Gibbons suddenly, pointing at his periscope, and adjusting it to telescopic focus. "A Han ship, and a 'drop ship' at that—and he's seen us. If he whips that beam of his on us, we're done."

I gazed, fascinated, at the viewplate. What I saw was a cigar shaped ship not dissimilar to our own in design, and from the proportional size of its ports, or about the same size as our swoopers. We learned later that they carried crews, for the most part of not more than three or four men. They had streamline hulls and trails that embodied universal-jointed double fish-tail rudders. In operation they rose to great heights on their powerful repellor rays, then gathered speed either by a straight nose dive, or an inclined dive in which they sometimes used the repellor ray slanted at a sharp angle. He was already above us, though several miles to the north. He could, of course, try to get on our tail and "spear" us with his beam as he dropped at us from a great height.

Suddenly his beam blazed forth in a blinding flash, whipping downward slowly to our right. He went through a peculiar corkscrew-like evolution, evidently maneuvering to bring his beam to bear on us with a spiral motion.

Gibbons instantly sent our ship into a series of evolutions that must have looked like those of a frightened hen. Alternately, he used the forward and the reverse rocket blasts, and in varying degree. We fluttered, we shot suddenly to right and left, and dropped like a plummet in uncertain movements. But all the time the Han scout dropped toward us, determinedly whipping the air around us with his beam. Once it sliced across beneath us, not more than a hundred feet, and we dropped with a jar into the pockets formed by the destruction of the air.

He had dropped to within a mile of us, and was coming with the speed of a projectile, when the end came. Gibbons always swore it was sheer luck. Maybe it was, but I like pilots who are lucky that way.

In the midst of a dizzy, fluttering maneuver of our own, with the Han ship enlarging to our gaze with terrifying rapidity, and its beam slowly slicing toward us in what looked like certain destruction within the second, I saw Gibbon's fingers flick at the lever of his rocket gun and a split second later the Han ship flew apart like a clay pigeon.

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We staggered, and fluttered crazily for several moments while Gibbons struggled to bring our ship into balance, and a section of about four square feet in the side of the ship near the stern slowly crumbled like rusted metal. His beam actually had touched us, but our explosive rocket had got him a thousandth of a second sooner.

Part of our rudder had been annihilated, and our motor damaged. But we were able to swoop gently back across Jersey, fortunately crossing the ship lanes without sighting any more Han craft, and finally settling to rest in the little glade beneath the trees, near Hart's camp.

The New Boss

WE had ultrophoned our arrival and the Big Boss himself, surrounded by the Council, was on hand to welcome us and learn our news. In turn we were informed that during the night a band of raiding Bad Bloods, disguised under the insignia of Altoonas, a gang some distance to the west of us, had destroyed several of our camps before our people had rallied and driven them off. Their purpose, evidently, had been to embroil us with the Altoonas, but fortunately, one of our exchanges recognized the Bad Blood leader, who had been slain.

The Big Boss had mobilized the full raiding force of the Gang, and was on the point of heading an expedition for the extermination of the Bad Bloods.

I looked around the grim circle of the sub-bosses, and realized the fate of America, at this moment, lay in their hands. Their temper demanded the immediate expenditure of our full effort in revenging ourselves for this raid. But the strategic exigencies, to my mind, quite clearly demanded the instant and absolute extermination of the Sinsings. It might be only a matter of hours, for all we knew, before these degraded people would barter clues to the American ultronic secrets to the Hans.

"How large a force have we?" I asked Hart.

"Every man and maid who can be spared," he replied. "That gives us seven hundred married and unmarried men, and three hundred girls, more than the entire Bad Blood Gang. Every one is equipped with belts, ultrophones, rocket guns and swords, and all fighting mad."

I meditated how I might put the matter to these determined men, and was vaguely conscious that they were awaiting my words.

Finally I began to speak. I do not remember to this day just what I said. I talked calmly, with due regard for their passion, but

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with deep conviction. I went over the information we had collected, point by point, building my case logically, and painting a lurid picture of the danger impending in that half-alliance between the Sinsings and the Hans of Nu-Yok. I became impaspasioned, culminating, I believe, with a vow to proceed single handed against the hereditary enemies of our race, "if the Wyomings were blindly set on placing a gang feud ahead of honor and duty and the hopes of all America."

As I concluded, a great calm came over me, as of one detached. I had felt much the same way during several crises in the First World War. I gazed from face to face, striving to read their expressions, and in a mood to make good my threat without any further heroics, if the decision was against me.

But it was Hart who sensed the temper of the Council more quickly then I did, and looked beyond it into the future.

He arose from the tree trunk on which he had been sitting.

"That settles it," he said, looking around the ring. "I have felt this thing coming on for some time now. I'm sure the Council agrees with me that there is among us a man more capable than I, to boss the Wyoming Gang, despite his handicap of having had all too short a time in which to familiarize himself with our modern ways and facilities. Whatever I can do to support his effective leadership, at any cost, I pledge myself to do."

As he concluded, he advanced to where I stood, and taking from his head the green crested helmet that constituted his badge of office, to my surprise he placed it in my mechanically extended hand.

The roar of approval that went up from the Council members left me dazed. Somebody ultrophoned the news to the rest of the Gang, and even though the earflaps of my helmet were turned up, I could hear the cheers with which my invisible followers greeted me, from near and distant hillsides, camps and plants.

My first move was to make sure that the Phone Boss, in communicating this news to the members of the Gang, had not re-broadcast my talk nor mentioned my plan of shifting the attack from the Bad Bloods to the Sinsings. I was relieved by his assurance that he had not, for it would have wrecked the whole plan. Everything depended upon our ability to surprise the Sinsings.

So I pledged the Council and my companions to secrecy, and allowed it to be believed that we were about to take to the air and the trees against the Bad Bloods.

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That outfit must have been badly scared, the way they were "burning" the ether with ultrophone alibis and propaganda for the benefit of the more distant gangs. It was their old game, and the only method by which they had avoided extermination long ago from their immediate neighbors—these appeals to the spirit of American brotherhood, addressed to gangs too far away to have had the sort of experience with them that had fallen to our lot.

I chuckled. Here was another good reason for the shift in my plans. Were we actually to undertake the exterminations of the Bad Bloods at once, it would have been a hard job to convince some of the gangs that we had not been precipitate and unjustified. Jealousies and prejudices existed. There were gangs which would give the benefit of the doubt to the Bad Bloods, rather than to ourselves, and the issue was now hopelessly beclouded with the clever lies that were being broadcast in an unceasing stream.

But the extermination of the Sinsings would be another thing. In the first place, there would be no warning of our action until it was all over, I hoped. In the second place, we would have indisputable proof, in the form of their rep ray ships and other paraphernalia, of their traffic with the Hans; and the state of American prejudice, at the time of which I write held trafficking with the Hans a far more heinous thing than even a vicious gang feud.

I called an executive session of the Council at once. I wanted to inventory our military resources.

I created a new office on the spot, that of "Control Boss," and appointed Ned Garlin to the post, turning over his former responsibility as Plants Boss to his assistant. I needed someone, I felt, to tie in the records of the various functional activities of the campaign, and take over from me the task of keeping the records of them up to the minute.

I received reports from the bosses of the ultrophone unit, and those of food, transportation, fighting gear, chemistry, electronic activity and electrophone intelligence, ultroscopes, air patrol and contact guard.

My ideas for the campaign, of course, were somewhat tinged with my 20th Century experience, and I found myself faced with the task of working out a staff organization that was a composite of the best and most easily applied principles of business and military efficiency, as I knew them from the viewpoint of immediate practicality.

What I wanted was an organization that would be specialized,

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functionally, not as that indicated above, but from the angles of: intelligence as to the Sinsings activities: intelligence as to Han activities: perfection of communication with my own units: co-operation of field command: and perfect mobilization of emergency supplies and resources.

It took several hours of hard work with the Council to map out the plan. First we assigned functional experts and equipment to each "Division" in accordance with it needs. Then these in turn were reassigned by the new Division Bosses to the Field Commands as needed, or as Independent or Headquarters Units. The two intelligence divisions were named the White and the Yellow, indicating that one specialized on the American enemy and the other on the Mongolians.

The division in charge of our own communications, the assignment of ultrophone frequencies and strengths, and the maintenance of operators and equipment, I called "communications."

I named Bill Hearn to the post of Field Boss, in charge of the main or undetached fighting units, and to the Resources Division, I assigned all responsibility for what few aircraft we had; and all transportation and supply problems, I assigned to "Resources." The functional bosses stayed with this division.

We finally completed our organization with the assignment of liaison representatives among the various divisions as needed.

Thus I had a "Headquarters Staff" composed of the Division Bosses who reported directly to Ned Garlin as Control Boss, or to Wilma as my personal assistant. And each of the Division Bosses had his own small staff.

IN the final summing up of our personnel and resources, I found we had roughly a thousand "troops," of whom some three hundred and fifty were, in what I called the Service Divisions, the rest being in Bill Hearn's Field Division. This latter number, however, was cut down somewhat by the assignment of numerous small units to detached service. Altogether, the actual available fighting force, I figured, would number about five hundred, by the time we actually went into action.

We had only six small swoopers, but I had an ingenious plan in my mind, as the result of our little raid on Nu-yok, that would make this sufficient, since the reserves of inertron blocks were larger than I expected to find them. The Resources Division, by packing its supply cases a bit tight, or by slipping in extra blocks of inertron, was able to reduce each to a weight of a few

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ounces. These easily could be floated and towed by the swoopers in any quantity. Hitched to ultron lines, it would be a virtual impossibility for them to break loose.

The entire personnel, of course, was supplied with jumpers, and if each man and girl was careful to adjust balances properly, the entire number could also be towed along through the air, grasping wires of ultron, swinging below the swoopers, or stringing out behind them.

There would be nothing tiring about this, because the strain would be no greater than that of carrying a one or two pound weight in the hand, except for air friction at high speeds. But to make doubly sure that we should lose none of our personnel, I gave strict orders that the belts and two lines should be equipped with rings and hooks.

So great was the efficiency of the fundamental organization and discipline of the Gang, that we got under way at nightfall.

One by one the swoopers eased into the air, each followed by its long train or "kite-tail" of humanity and supply cases hanging lightly from its tow line. For convenience, the two lines were made of an alloy of ultron which, unlike the metal itself, is visible.

At first these "tails" hung downward, but as the ships swung into formation and headed eastward toward the Bad Blood territory, gathering speed, they began to string out behind. And swinging low from each ship on heavily weighted lines, ultroscope, ultrophone, and straight-vision observers keenly scanned the countryside, while intelligence men in the swoopers above bent over their instrument boards and viewplates.

Leaving Control Boss Ned Garlin temporarily in charge of affairs, Wilma and I dropped a weighted line from our ship, and slid down about half way to the under lookouts, that is to say, about a thousand feet. The sensation of floating swiftly through the air like this, in the absolute security of one's confidence in the inertron belt, was one of never-ending delight to me.

We reascended into the swooper as the expedition approached the territory of the Bad Bloods, and directed the preparations for the bombardment. It was part of my plan to appear to carry out the attack as originally planned.

About fifteen miles from their camps our ships came to a halt and maintained their positions for a while with the idling blasts of their rocket motors, to give the ultroscope operators a chance to make a thorough examination of the territory below us, for it was very important that this next step in our program should be carried out with all secrecy.

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At length they reported the ground below us entirely clear of any appearance of human occupation, and a gun unit of long-range specialists was lowered with a dozen rocket guns, equipped with special automatic devices that the Resources Division had developed at my request, a few hours before our departure. These were aiming and timing devices. After calculating the range, elevation and rocket charges carefully, the guns were left, concealed in a ravine, and the men were hauled up into the ship again. At the predetermined hour, those unmanned rocket guns would begin automatically to bombard the Bad Bloods' hillsides, shifting their aim and elevation slightly with each shot, as did many of our artillery pieces in the First World War.

In the meantime, we turned south about twenty miles, and grounded, waiting for the bombardment to begin before we attempted to sneak across the Han ship lane. I was relying for security on the distraction that the bombardment might furnish the Han observers.

It was tense work waiting, but the affair went through as planned, our squadron drifting across the route high enough to enable the ships' tails of troops and supply cases to clear the ground.

In crossing the second ship route, out along the Beaches of Jersey, we were not so successful in escaping observation. A Han ship came speeding along at a very low elevation. We caught it on our electronic location and direction finders, and also located it with our ultroscopes, but it came so fast and so low that I thought it best to remain where we had grounded the second time, and lie quiet, rather than get under way and cross in front of it.

The point was this. While the Hans had no such devices as our ultronoscopes, with which we could see in the dark (within certain limitations of course), and their electronic instruments would be virtually useless in uncovering our presence, since all but natural electronic activities were carefully eliminated from our apparatus, except electrophone receivers (which are not easily spotted), the Hans did have some very highly sensitive sound devices which operated with great efficiency in calm weather, so far as sounds emanating from the air were concerned. But the "ground roar" greatly confused their use of these instruments in the location of specific sounds floating up from the surface of the earth.

This ship must have caught some slight noise of ours, however, in its sensitive instruments, for we heard its electronic devi-

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ces go into play, and picked up the routine report of the noise to its Base Ship Commander. But from the nature of the conversation, I judged they had not identified it, and were, in fact, more curious about the detonations they were picking up now from the Bad Blood lands some sixty miles or so to the west.

Immediately after this ship had shot by, we took the air again, and following much the same route that I had taken the previous night, climbed in a long semi-circle out over the ocean, swung toward the north and finally the west. We set our course, however, for the Sinsings land north of Nu-Yok, instead of for the city itself.

The Finger of Doom

AS we crossed the Hudson River, a few miles north of the city, we dropped several units of the Yellow Intelligence Division, with full instrumental equipment. Their apparatus cases were nicely balanced at only a few ounces weight each, and the men used their chute capes to ease their drops.

We recrossed the river a little distance above and began dropping White Intelligences units and a few long and short range-gun units. Then we held our position until we began to get reports. Gradually we ringed the territory of the Sinsings, our observation units working busily and patiently at their locaters and scopes, both aloft and aground, until Garlin finally turned to me with the remark:

"The map circle is complete now, Boss. We've got clear locations all the way around them."

"Let me see it." I replied, and studied the illuminated viewplate map, with its little overlapping circles of light that indicated spots proved clear of the enemy by ultroscopic observation.

I nodded to Bill Hearn. "Go ahead now, Hearn," I said, "and place your barrage men."

He spoke into his ultrophone, and three of the ships began to glide in a wide ring around the enemy territory. Every few seconds, at the word from his Unit Boss, a gunner would drop off the wire, and slipping the clasp of his chute cape, drift down into the darkness below.

Bill formed two lines, parallel to and facing the river, and enclosing the entire territory of the enemy between them. Above and below, straddling the river, were two defensive lines. These latter were merely to hold their positions. The others were to close in toward each other, pushing a high-explosive barrage five miles ahead of them. When

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the two barrages met, both lines were to switch to short-vision-range barrage and continue to close in on any of the enemy who might have drifted through the previous curtain of fire.

In the meantime Bill kept his reserves, a picked corps of a hundred men (the same that had accompanied Hart and myself in our fight with the Hand squadron) in the air, divided about equally among the "Kite tails" of our ships.

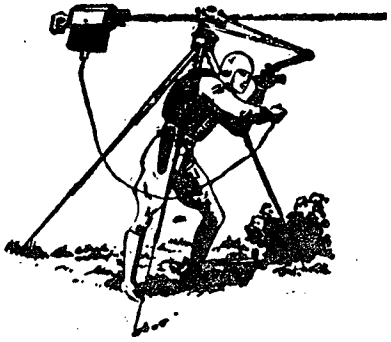
A final roll call, by units, companies, divisions and functions, established the fact that all our forces were in position. No Han activity was reported, and no Han broadcasts indicated any suspicion of our expedition. Nor was there any indication that the Sinsings had any knowledge of the fate in store for them. The idling of rep ray generators was reported from the center of their camp, obviously those of the ships the Hans had given them—the price of their treason to their race.

Again I gave the word, and Hearn passed on the order to his subordinates. Far below us, and several miles to the right and left, the two barrage lines made their appearance. From the great height to which we had risen, they appeared like lines of brilliant, winking lights, and the detonations were muffled by the distances into a sort of rumbling, distant thunder. Hearn and his assistants were very busy; measuring, calculating, and snapping out ultrophone orders to unit commanders that resulted in the straightening of lines and the closing of gaps in the barrage.

The White Division Boss reported the utmost confusion in the Sinsing organization. (They were, as might be expected, an inefficient, loosely disciplined gang), and repeated broadcasts for help to neighboring gangs. Ignoring the fact that the Mongolians had not used explosives for many generations, they nevertheless jumped at the conclusion that they were being raided by the Hans. Their frantic broadcasts persisted in this thought, despite the nervous electrophonic inquiries of the Hans themselves, to whom the sound of the battle was evidently audible, and who were trying to locate the trouble.

At this point, the swooper I had sent South toward the city went into action as a diversion, to keep the Hans at home. Its "kite tail" loaded with long-range gunners, using the most highly explosive rockets we had, hung invisible in the darkness of the sky and bombarded the city from a distance of about five miles. With an entire city to shoot at, and the object of creating as much commotion therein as possible, regardless of actual

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Setting the rocket gun for a long distance shot.

damage, the gunners had no difficulty in hitting the mark. I could see the glow of the city and the stabbing flashes of exploding rockets. In the end, the Hans, uncertain as to what was going on, fell back on a defensive policy, and shot their "hell cylinder," or wall of upturned disintegrator rays into operation. That, of course, ended our bombardment of them. The rays were a perfect defense, disintegrating our rockets as they were reached.

If they had not sent out ships before turning on the rays, and if they had none within sufficient radius already in the air, all would be well.

I queried Garlin on this, but he assured me Yellow Intelligence reported no indication of Han ships nearer than 800 miles. This would probably give us a free hand for a while, since most of their instruments recorded only imperfectly or not at all, through the death wall.

Requisitioning one of the viewplates of the headquarters ship, and the services of an expert operator, I instructed him to focus on our lines below. I wanted a close-up of the men in action.

He began to manipulate his controls and chaotic shadows moved rapidly across the plate, fading in and out of focus, until he reached an adjustment that gave me a picture of the forest floor, apparently 100 feet wide, with the intervening branches and foliage of the trees appearing like shadows that melted into reality a few feet above the ground.

I watched one man setting up his long-gun with skillful speed. His lips pursed slightly as though he were whistling, as he adjusted the tall tripod on which the long tube was balanced. Swiftly he twirled the knobs controlling the aim and elevation of his piece. Then, lifting a belt of ammunition from the big box, which itself looked heavy enough to break down the spindly tripod, he inserted the end of it in the lock of his tube and touched the proper combination of buttons.

Then he stepped aside, and occupied himself with peering carefully through the trees ahead. Not even a tremor shook the tube, but I knew that at intervals of something less than a second, it was discharging small projectiles which, traveling un-

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der their own continuously reduced power, were arching into the air, to fall precisely five miles ahead and explode with the force of eight-inch shells, such as we used in the First World War.

Another gunner, fifty feet to the right of him, waved a hand and called out something to him. Then, picking up his own tube and tripod, he gauged the distance between the trees ahead of him, and the height of their lowest branches, and bending forward a bit, flexed his muscles and leaped lightly, some twenty feet or so, where he set up his piece.

I ordered my observer then to switch to the barrage itself. He got a close focus on it, but this showed little except a continuous series of blinding flashes, which, from the viewplate, lit up the entire interior of the ship. An eight-hundred-foot focus proved better. I had thought that some of our French and American artillery of the 20th Century had achieved the ultimate in mathematical precision of fire, but I had never seen anything to equal the accuracy of that line of terrific explosions as it moved steadily forward, mowing down trees as a scythe cuts grass (or used to 500 years ago), literally churning up the earth and the splintered, blasted remains of the forest giants, to a depth of from ten to twenty feet.

By now the two curtains of fire were nearing each other, lines of vibrant, shimmering, continuous, brilliant destruction, inevitably squeezing the panic-stricken Sinsings between them.

Even as I watched, a group of them, who had been making a futile effort to get their three rep ray machines into the air, abandoned their efforts, and rushed forth into the milling mob.

I QUERIED the Control Boss sharply on the futility of this attempt of theirs, and learned that the Hans, apparently in doubt as to what was going on, had continued to "play safe," and broken off their power broadcast, after ordering all their own ships East of the Alleghenies to the ground, for fear these ships they had traded to the Sinsings might be used against them.

Again I turned to my viewplate, which was still focused on the central section of the Sinsing works. The confusion of the traitors was entirely that of fear, for our barrage had not yet reached them.

Some of them set up their long-guns and fired at random over the barrage line, then gave it up. They realized that they had no target to shoot at; no way of knowing whether our gunners were a few hundred feet or several miles beyond it.

Their ultrophone men, of

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whom they did not have many, stood around in tense attitudes, their helmet phones strapped around their ears, nervously fingering the tuning controls at their belts. Unquestionably they must have located some of our frequencies, and overheard many of our reports and orders. But they were confused and disorganized. If they had an Ultrophone Boss they evidently were not reporting to him in an organized way.

They were beginning to draw back now before our advancing fire. With intermittent desperation, they began to shoot over our barrage again, and the explosions of their rockets flashed at widely scattered points beyond. A few took distance "pot shots."

Oddly enough it was our own forces that suffered the first casualties in the battle. Some of these distance shots by chance registered hits, while our men were under strict orders not to exceed their barrage distances.

Seen upon the ultroscope viewplate, the battle looked as though it were being fought in daylight, perhaps on a cloudy day, while the explosions of the rockets appeared as flashes of extra brilliance.

The two barrage lines were not more than five hundred feet apart when the Sinsings resorted to tactics we had not foreseen. We noticed first that they began to lighten themselves by throwing away extra equipment. A few of them in their excitement threw away too much, and shot suddenly into the air. Then a scattering few floated up gently, followed by increasing numbers, while still others preserving a weight balance, jumped toward the closing barrages and leaped high, hoping to clear them. Some succeeded. We saw others blown about like leaves in a windstorm, to crumple and drift slowly down, or else to fall into the barrage, their belts blown from their bodies.

However, it was not part of our plan to allow a single one of them to escape and find his way to the Hans. I quickly passed the word to Bill Hearn to have the alternate men in his line raise their barrages and heard him bark out a mathematical formula to the Unit Bosses.

We backed off our ships as the explosions climbed into the air in stagger formation until they reached a height of three miles. I don't believe any of the Sinsings who tried to float away to freedom succeeded.

But we did know later, that a few who leaped the barrage got away and ultimately reached Nu-yok.

It was those who managed to jump the barrage who gave us the most trouble. With half of

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our long-guns turned aloft, I foresaw we would not have enough to establish successive ground barrages and so ordered the barrage back two miles, from which positions our "curtains" began to close in again, this time, however, gauged to explode, not on contact, but thirty feet in the air. This left little chance for the Singsings to leap either over or under it.

Gradually, the two barrages approached each other until they finally met, and in the grey dawn the battle ended.

Our own casualties totaled one-hundred and nine. Since nearly every member of the Sinsing Gang had, so far as we knew been killed, we considered the raid a great success.

It had, however, a far greater significance than this. To all of us, who took part in the expedition, the effectiveness of our barrage tactics definitely established a confidence in our ability to overcome the Hans.

As I pointed out to Wilma:

"It has been my belief all along, dear, that the American explosive rocket is a far more efficient weapon than the disintegrator ray of the Hans, once we can train all our gangs to use it systematically and in co-ordinated fashion. As a weapon in the hands of a single individual, shooting at a mark in direct line of vision, the rocket-gun is inferior in destructive power to the dis ray, except as its range may be a little greater. The trouble is that to date it has been used only as we used our rifles and shot guns in the 20th Century. The possibilities of its use as artillery, in laying barrages that advance along the ground, or climb into the air, are tremendous.

"The dis ray inevitably reveals its source of emanation. The rocket-gun does not. The dis ray can reach its target only in a straight line. The rocket can travel in an arc, over intervening obstacles, to an unseen target.

"Nor must we forget that our ultronists now are promising us a perfect shield against the dis ray in inertron."

"I tremble though, Tony dear, when I think of the horrors that are ahead of us. The Hans are clever. They will develop defenses against our new tactics. And they are sure to mass against us not only the full force of their power in America, but the united forces of the World Empire. They are ruthless and clever."

"Nevertheless," I prophesied, "the Finger of Doom points squarely at them today, and unless you and I are killed in the struggle, we shall live to see America blast the Yellow Blight from the face of the Earth."

THE END

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DEVOLUTION

(continued from page 39)

It was tinged with pity, yet strong with a superhuman loathing.

"Come, my brothers," the Arctarian was saying to his fellows. "There is nothing we can do here on this soul-sickening world.

"Let us go, before we too are poisoned and changed. And we will send warning to Arctar that this world is a poisoned world, a world of degeneration, so that never again may any of our race come here and go down the awful road that those others went down.

"Come! We return to our own sun."

The Arctarian leader's humped shape flattened, assumed a disk-like form, then rose smoothly upward into the air.

The others too changed and followed, in a group, and a stupefied Woodin stared up at them, glistening dots lifting rapidly into the starlight.

He staggered forward a few steps, shaking his fist furiously, insanely up at the shining, receding dots.

"Come back, damn you!" he screamed. "Come back and tell me it's a lie!

"It must be a lie—it must—"

There was no sign of the vanished Arctarians now in the starlit sky. The darkness was brooding and intense around Woodin.

He screamed up again into the night but only a whispering echo answered. Wild-eyed, staggering, soul-smitten, his gaze fell on the pistol in Ross' hand. He seized it with a hoarse cry.

The stillness of the forest was broken suddenly by a sharp crack, that reverberated a moment and then died rapidly away. Then all was silent again save for the chuckling whisper of the river hurrying on.

THE END

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about the covers, and frank r. paul

This may be the first time in sf history that one artist is represented by a full-color illustration on both the front and back covers of the same issue of a magazine. If so, it is logical that the honor should fall to Frank R. Paul, considered by many to be dean of science fiction artists.

Paul drew covers and inside artwork for the early issues of *Amazing*. His genius—and the magazine's good fortune—was that Paul's work accurately reflected the spirit of science-fiction, possessed the vital "sense of wonder."

For this issue's front cover, Paul created a frieze designed to illustrate typical situations and characters from classic sf tales. At the upper right, for instance, is Adam Link, the robot of Binder's "I, Robot." At upper left is the immortal Buck Rogers, and at lower right the deadly jelly-like creatures in Hamilton's "Devolution." The back cover is a Paul phantasmagoria of a Venusion scene.

Paul was born in Vienna in 1884 and arrived in New York in 1906. He has worked for newspapers and ad agencies as well as magazines, has designed many industrial buildings, and painted historical murals.

Paul's strongest assets for sf art are his ability to visualize imaginary machinery; his remarkable scenic astronomicals; and his talent for giving other-world creatures expression and personality. Paul's proudest boast is that though he has drawn tens of thousands of spaceships—he has never drawn the same design twice!

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